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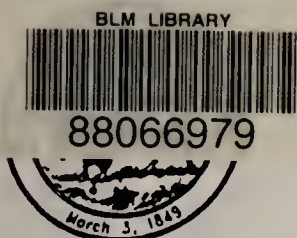
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Department of the Interior
Bureau of Land Management

December 1995



Coos Bay District
1300 Airport Lane
North Bend, Oregon 97459

Hunter Creek Bog and North Fork Hunter Creek Areas of Critical Environmental Concern

Draft Management Plan and Environmental Assessment

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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/AE-96/001+1792



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OFFICE
1300 AIRPORT LANE
NORTH BEND, OREGON 97459-2000

IN REPLY REFER TO:

DEC 5 1995

Dear Concerned Citizen,

This Draft Management Plan/Environmental Assessment (EA) for Hunter Creek Bog and North Fork Hunter Creek Areas of Critical Environmental Concern (ACECs) is provided for your review and comment. The plan describes three alternatives and site-specific management for protection of unique resource values important to ACEC designation. Various management actions are listed, by alternative, for recreation use, vegetative management, minerals, harvest of special forest products, and other activities.

A public meeting to offer additional explanation and receive public comment is scheduled for Thursday January 11th, 1996 at 7 p.m. at Jot's Resort in Gold Beach.

Your comments can also be mailed to: Bruce Rittenhouse, Coos Bay BLM District, 1300 Airport Lane, North Bend, OR 97459. To be considered in development of the final management plan, comments are due by January 22, 1996, which is the close of the public comment period.

To be most helpful, your input should be specific. Particularly appreciated are comments about the proposed action (Alternative B), new information, factual corrections, and appropriateness of the Finding of No Significant Impact.

Thank you for your interest and participation in this planning effort.

Sincerely,

Neal Middlebrook
Area Manager, Myrtlewood Resource Area

**Draft Management Plan/Environmental Assessment
for
Hunter Creek Bog and North Fork Hunter Creek
Areas of Critical Environmental Concern**

Proposed Action: The proposed management of Hunter Creek Bog (720 acres) and North Fork Hunter Creek (1,920 acres) Areas of Critical Environmental Concern (ACEC).

Type of Statement: Environmental Assessment (EA)

Lead Agency: Bureau of Land Management (BLM)

**For Further
Information:**

Bruce Rittenhouse (Team Leader/EA Writer)
Neal Middlebrook (Myrtlewood Area Manager)
Bureau of Land Management
Coos Bay District
1300 Airport Lane
North Bend, OR 97459-2000
(541) 756-0100

Abstract: This EA analyzes three alternatives for management of Hunter Creek Bog and North Fork Hunter Creek ACECs. These alternatives were developed with input from public comments and a BLM interdisciplinary team. The issues evaluated were the designated ACEC values (special status species, natural systems/plant communities, fish/wildlife habitat, and historic/cultural), recreation, and mineral resources.

Alternative A is the No Action alternative which proposes continuing the current management of these areas. Alternative B, the Proposed Action, proposes minimal recreational developments with the objective of resource conservation, while Alternative C proposes additional recreational opportunities to increase recreation use while conserving ACEC values.

Finding of No Significant Impact (FONSI)
for
Hunter Creek Bog and North Fork Hunter Creek
Areas of Critical Environmental Concern (ACEC)
OR128-95-22

The Bureau of Land Management, Coos Bay District, has analyzed three alternatives for the management of public domain lands within the areas known as Hunter Creek Bog and North Fork Hunter Creek Areas of Critical Environmental Concern (ACECs). These three alternatives have an array of management actions described in the attached environmental assessment. The alternatives respond to the underlying need for protection and maintenance of the designated ACEC values while maintaining current recreational and mining opportunities.

Management objectives were developed by a interdisciplinary team of BLM resource specialists, considering written and verbal input from the public.

The Proposed Action (Alternative B) analyzed the following resource issues:

- Designated ACEC values (special status species, natural systems/plant communities, fish and wildlife habitat, and historic/cultural).
- Recreation impacts on designated ACEC values.
- Mining impacts on designated ACEC values while providing claimants their rights under the 1872 Mining Law.

Management actions outlined in the Proposed Action attempt to reduce the impacts currently occurring within the ACECs.

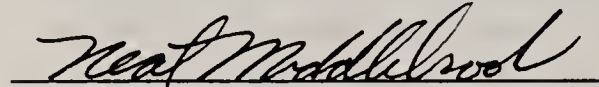
The estimated lifespan of the Management Plan is 10 years, or until additional guidance is necessary. After the environmental assessment has been reviewed and an alternative is selected from this Draft Management Plan, a Decision Record and final ACEC management plan will be developed to identify which management actions will be implemented. Regulatory changes (e.g., special forest product harvest) will be implemented immediately, while other actions will occur as funding and staff are available.

The Hunter Creek Bog and North Fork Hunter Creek ACECs Management Plan will have no effect on wilderness, air quality, prime or unique farmlands, wild and scenic rivers, Native American Religious concerns, or solid/hazardous waste. Further, no significant impacts would occur to:

- Human environment or the socioeconomic region from this decision
- Threatened or Endangered Species
- Floodplains, wetlands and riparian areas
- Water resources

FONSI Determination

This FONSI is in accordance with the National Environmental Policy Act (NEPA) and the Council of Environmental Quality (CEQ). On the basis of the information in the Environmental Assessment and all other information available to me as is summarized above, it is my determination that none of the three alternatives constitute a major federal action significantly affecting the quality of the human environment and that this is a Finding of No Significant Impact. Therefore, an Environmental Impact Statement is unnecessary and will not be prepared.



Neal Middlebrook
Myrtlewood Area Manager
1300 Airport Lane
North Bend, OR 97459-2000

11/30/95
Date

For more information, contact:
Bruce Rittenhouse
1300 Airport Lane
North Bend, OR 97459-2000
(541) 756-0100

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Chapter 1 - Introduction

Background Information

Lands designated as Areas of Critical Environmental Concern (ACEC) require special management attention to protect and prevent irreparable damage to historic, cultural, or scenic values, fish, wildlife and plant resources, and other natural systems or processes; or to protect life and provide safety from natural hazards. The Federal Land Policy Management Act (FLPMA) (Public Law 94-579) requires that the Bureau of Land Management (BLM) give priority to the designation, management, and protection of ACECs.

Public land designated as an ACEC must meet the criteria of "Relevance" and "Importance." "Relevance" criterion for ACEC designation requires public land to have characteristics of significant scenic values, or habitat for sensitive or threatened animal and plant species. The relevant values or resources identified must also have substantial significance to meet the "Importance" criteria for ACEC designation. Identified values must be more than locally significant and have qualities that make the area fragile, sensitive, unique or vulnerable to adverse change.

In 1982, the Kalmiopsis Audubon Society and Innominata Garden Club proposed to the Coos Bay BLM District that Hunter Creek bog and springs be designated as an ACEC. Their request was based on the high diversity of plants and animals in the area and the uniqueness of their habitats (Bowen et al. 1982). Pursuing their request at that time would have required a plan amendment to the Management Framework Plan (MFP), and consideration of three criteria ("Relevance" and "Importance," as well as "Protection"). District Management did not feel that the Hunter Creek area met the "Protection" criteria because of the area's existing mining claims. This "Protection" criteria has since been eliminated from ACEC designation.

Hunter Creek Bog and North Fork Hunter Creek ACECs were proposed as ACECs under the Final Coos Bay BLM District Resource Management Plan (RMP) (1994) and designated under its Record of Decision (1995). Together, these two ACECs total approximately 2,640 acres and were identified for the following reasons:

- Hunter Creek Bog ACEC
 - Special Status Species
 - Natural Systems/Plant Communities
 - Historic/Cultural Values
- North Fork Hunter Creek ACEC
 - Special Status Species
 - Natural Systems/Plant Communities
 - Fish/Wildlife Habitat
 - Historic/Cultural Values

This draft management plan/environmental assessment (EA) presents three alternatives for management of Hunter Creek Bog and North Fork Hunter Creek ACECs. Management goals within these ACECs are to protect, conserve, and enhance designated values while allowing appropriate activities.

Purpose and Need for Action

The purpose of this document is to describe actions that will guide management for Hunter Creek Bog and North Fork Hunter Creek ACECs for approximately the next 10 years. A site-specific management plan and environmental assessment are required by FLPMA and National Environmental Policy Act (NEPA 1969). Public involvement and coordination with federal, state and local agencies is part of plan development.

This draft management plan and EA tier to the final Coos Bay District RMP, which is tiered to the Record of Decision for the Final Supplemental Environmental Impact Statement for *Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (1994). These ACECs are Administratively Withdrawn Areas included in

a Late-Successional Reserve (LSR). LSRs are managed to protect and enhance habitat for late-successional and old-growth related species.

Management is needed to protect, conserve, and enhance the ACEC values. This need is based on increased human use within Hunter Creek bog which has increased impacts to these areas' sensitive ecosystems, and also continued recreation use in the ACECs.

The ACECs (particularly Hunter Creek Bog) have mining claims dating as far back as 1936. While the rights of mining claimants are protected under this plan, increased protection of the ACEC values is also provided.

Consistency With State and County Plans

All alternatives in this EA are consistent with the Oregon Coastal Zone Management Program, the Curry County Natural Resources Zoning Ordinance, and other existing land use plans and laws.

Statutory Authority

Congress provided specific language in FLPMA for identification and protection of areas on the public lands having significant natural and cultural resources.

FLPMA provides that ACECs be given priority in the "inventory of all public lands and their resources and other values," but that such identification "shall not, of itself, change or prevent change of the management of public lands." Under FLPMA, Congress made clear that it viewed ACECs as special places within the public lands. Senate Report No. 94-583, by the Committee on Interior and Insular Affairs, stated that "management of public lands is to include giving special attention to the protection of ACECs for the purpose of ensuring that the most environmentally important and fragile lands will be given...early attention and protection."

This report also stated that "unlike wilderness areas... (ACECs) are not necessarily areas in which no development can occur." Limited development, when wisely planned and properly managed, can occur in these areas without permanent damage to the historic, cultural or natural systems and processes for which the ACECs were designated. In some cases, limited development may reduce current resource damage.

FLPMA set the foundation to prepare policy and procedures for identifying, designating and managing ACECs. BLM regulations for land use planning (43 CFR 1610.7-2 and 1610.5-5 May 5, 1983) guide the ACEC designation process. Copies of these regulations and laws are available at the Coos Bay BLM District Office.

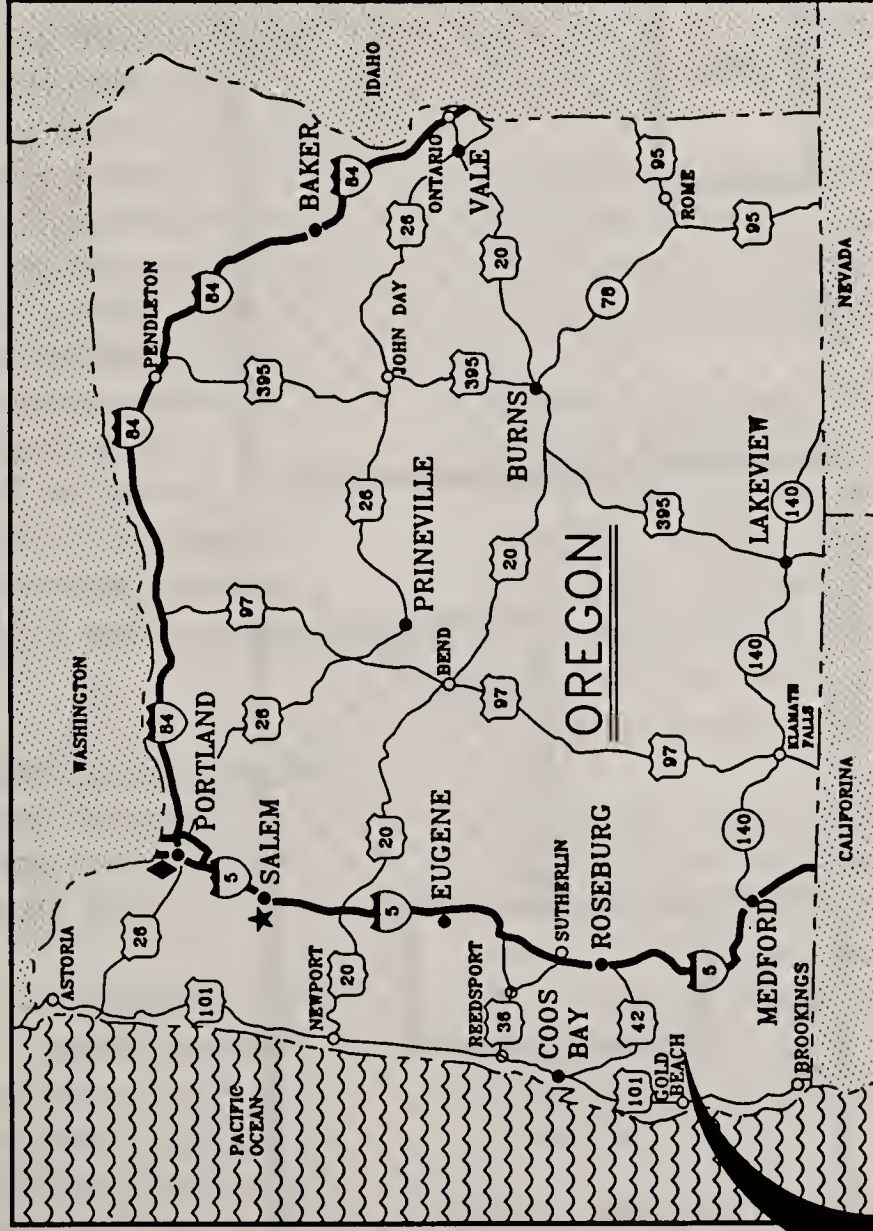
Setting

Hunter Creek Bog and North Fork Hunter Creek ACECs are located approximately 6 air miles east-southeast of Gold Beach, Oregon (Fig. 1-1). Hunter Creek Bog encompasses 720 acres in Sections 13 and 24 in Township 37 South, Range 14 West (Willamette Meridian). North Fork Hunter Creek encompasses 1,920 acres in Sections 1, 2, and 11-14 of Township 37 South, Range 14 West (Willamette Meridian) (Fig. 1-2).

Lands within these ACECs are public domain lands administered by the Bureau of Land Management, Coos Bay District. Elevation ranges from 800 to 3,000 feet. Both ACECs are entirely within the Hunter Creek watershed. Boundaries of the ACECs are defined by Forest Service land to the east and South Coast Lumber Company to the north, west and south.



FIGURE 1-1. HUNTER CREEK
VICINITY MAP



VICINITY MAP

AREA REFERENCE MAP

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	INTERSTATE HIGHWAY	★	STATE CAPITAL
	U.S. HIGHWAY	◆	BLM STATE OFFICE
	STATE HIGHWAY	•	BLM DISTRICT OFFICE

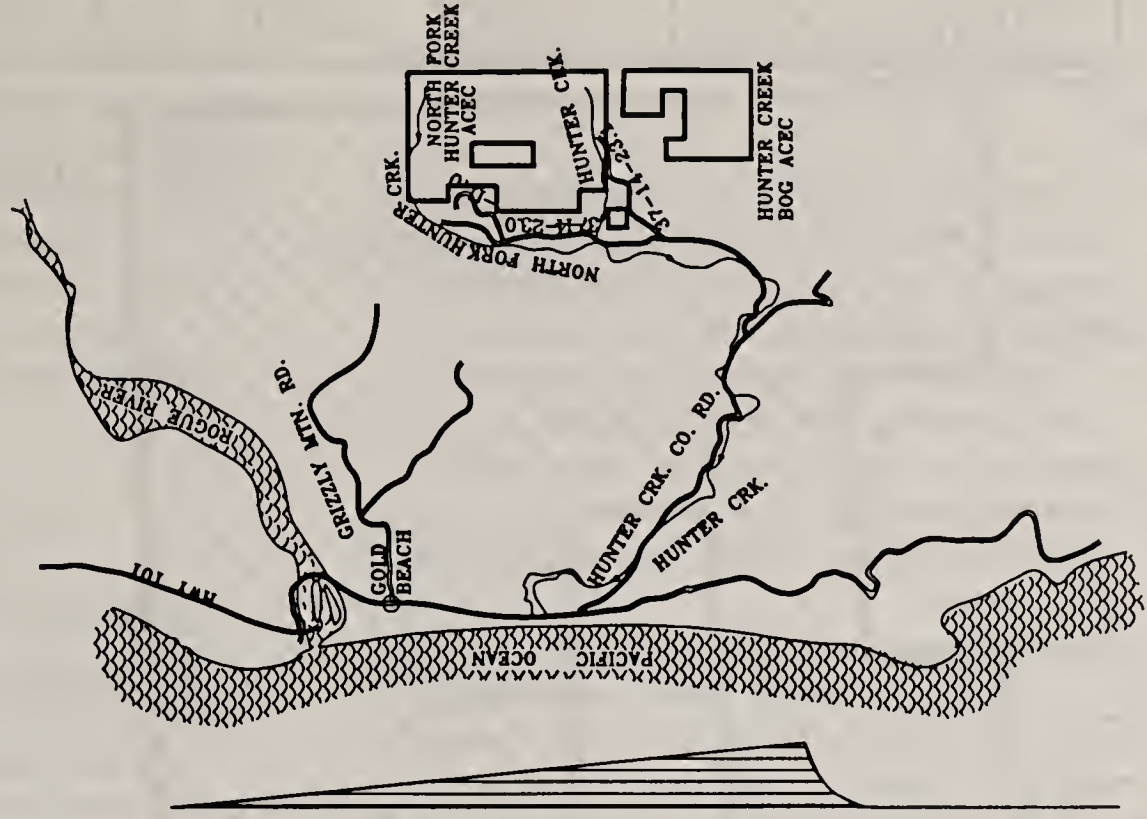
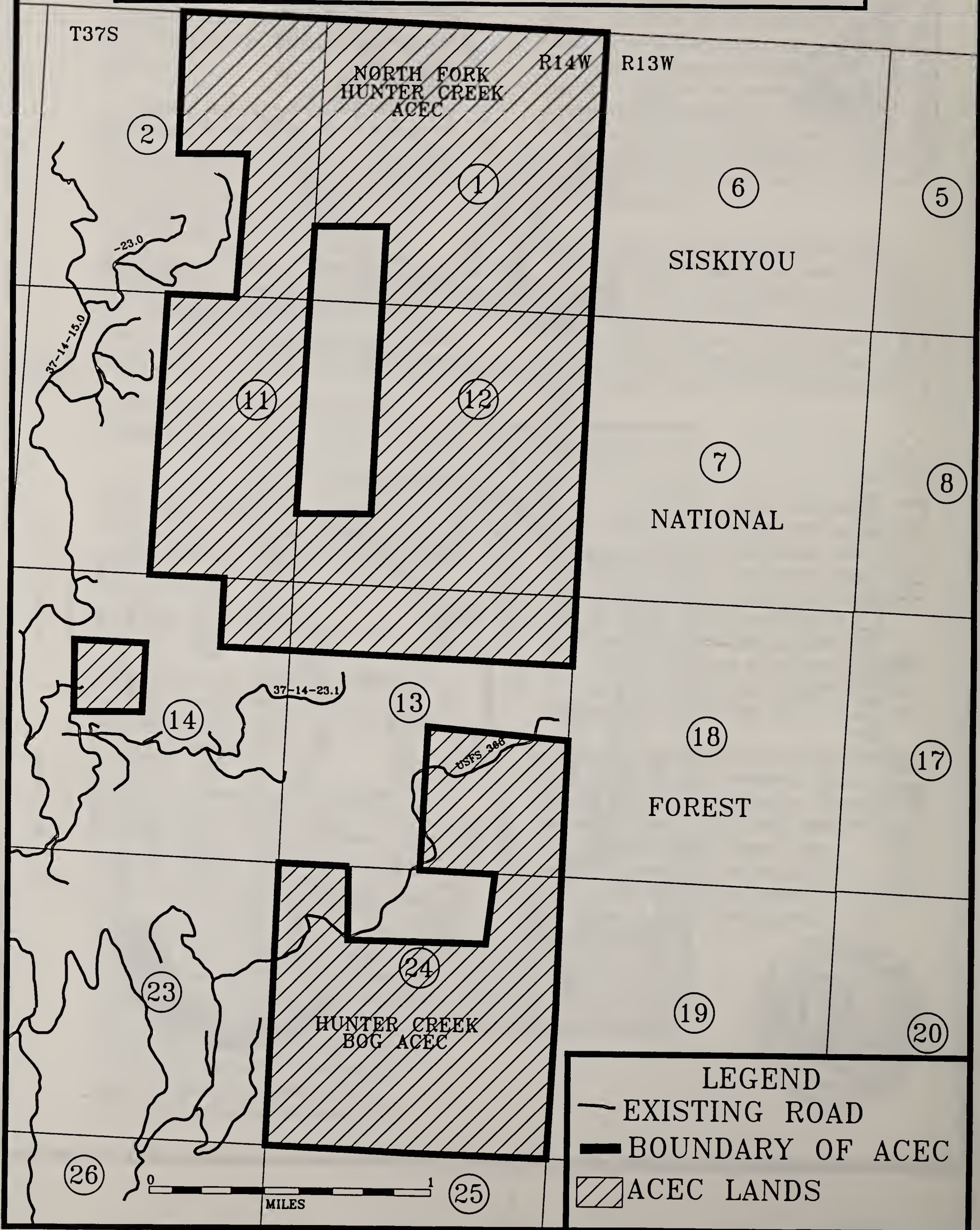


FIGURE 1-2. HUNTER CREEK BOG AND NORTH FORK HUNTER CREEK ACEC PLANNING AREAS



Climate is influenced primarily by the Pacific Ocean. Temperatures are generally mild year round. The ACECs are outside the coastal fog belt zone and, during the summer, days are typically warm and sunny. Average precipitation, mostly in the form of rain, is approximately 80-100 inches, with the majority occurring between November and May.

Designated ACEC Values

Hunter Creek Bog and North Fork Hunter Creek ACECs were designated for several natural resource values: special status species, natural systems/plant community, fish and wildlife habitat, and historic/cultural resources. Each of these values is described below.

Special Status Species - Both ACECs contain suitable habitat for 14 special status plant species and 17 special status animal species. Of these, documented species include 9 special status plant species (one federal candidate, one BLM sensitive, five BLM assessment, and two BLM tracking species) and 4 special status^a animal species (two federal candidates, one BLM assessment, and one state sensitive vulnerable). Currently, there are no documented occurrences of any federally listed wildlife species in the ACEC, but potential habitat is present for three species (northern spotted owl, marbled murrelet and peregrine falcon).

The North Fork Hunter Creek ACEC provides habitat to steelhead. Klamath Mountain Province steelhead are proposed for listing under the Endangered Species Act.

Natural Systems/Plant Communities - North Fork Hunter Creek ACEC contains extensive groves of Jeffrey pine, interspersed with rocky prairies and serpentine outcrops. This ACEC has the only example of a Jeffrey pine-Oregon white oak forest within 10 miles of the ocean. Hunter Creek Bog ACEC contains the most diverse serpentine bog within the coastal zone of the Siskiyou Mountains, and also contains stands of Port-Orford-cedar not infected with

Port-Orford-cedar root rot (*Phytophthora lateralis*).

Fish/Wildlife Habitat - High quality hardwood riparian zones bordering the North Fork of Hunter Creek are productive for resident trout and anadromous fish populations (fall chinook salmon and winter steelhead). The large prairies, oak savannas, and hardwood and conifer forests are heavily used by big game (e.g., deer, elk and bear) and other terrestrial mammals, birds, reptiles and amphibians.

Historic/Cultural - One prehistoric lithic manufacturing site has been identified in Hunter Creek Bog ACEC. North Fork Hunter Creek ACEC, has one prehistoric camp site along Hunter Creek, two historic cabins and visible portions of several historic trails.

Other Values/Uses

In addition to their designated ACEC values, the Hunter Creek bog and North Fork Hunter Creek areas are important for mineral resources and recreation, as discussed below.

Mineral Resources - Hunter Creek Bog ACEC is entirely under mining claims, some dating back to 1936. Minerals of interest within the ACECs include nickel, chromium, and cobalt. The mineral potential for the areas is currently unknown, but appears to be similar to other low grade nickel deposits in southwest Oregon.

Recreation - The primary recreational use in both ACECs is observation of the unique plant communities and diverse wildlife by groups and educators. Hunter Creek bog is a focal point for research of unique vegetation.

Management Issues

Three issues have been identified in the two ACECs: protection of designated ACEC values; minerals; and recreation.

Protection of Designated ACEC Values - The main issue addressed in this draft management plan/EA is the protection, conservation, and enhancement of the ACEC values (special status species, natural systems/plant communities, fish/wildlife habitat and historic/cultural values) while allowing and managing appropriate mining and recreation activities.

Minerals - The mining issue focuses on mineral activities within the ACEC that may impact designated ACEC values. The plan proposes measures to protect mining claimants' rights under the 1872 Mining Law while minimizing impacts to ACEC values, to the extent practicable.

Recreation - Recreation use (including unconstrained access in sensitive areas, such as Hunter Creek bog) may be degrading ACEC values, specifically special status plants and

unique plant communities. While recreation use (e.g., hiking, birding, camping, and photography) will continue, the goal is to redirect users to less sensitive areas while still providing opportunities to see unique ACEC values.

Public Scoping Summary

Throughout development of this draft management plan/EA, the public had opportunities to comment. The public scoping period included two public meetings (one in Gold Beach and one in Bandon) followed by a 30-day written comment period. This draft management plan/EA, as well as another public meeting in Gold Beach during the designated comment period, will provide additional opportunity for the public to provide comments and specific management ideas.

Chapter 2 - Description of Alternatives

General Description of Alternatives

The three alternatives were developed using input from a multidisciplinary team of BLM natural resource specialists and comments provided by the public. The three alternatives are:

- Alternative A - No Action
- Alternative B - Resource Conservation (Proposed Action)
- Alternative C - Recreation Emphasis

Actions Common to All Alternatives

Some management actions are recommended or required by BLM Policy for all alternatives. Actions under all alternatives are consistent with all applicable federal laws.

Serpentine Bog Conservation Agreement - It is the intent of this plan to comply with conservation actions under an upcoming serpentine bog Conservation Agreement between the Coos Bay District, Forest Service, and Fish and Wildlife Service to protect the population of Waldo gentian (*Gentiana setigera*) and other associated species. Under the Agreement, both private and public landowners will agree to specific conservation strategies for plant and animal species, to reduce their risk of listing under the ESA.

Mineral Activities - Per BLM policy 3809.14(A)(3) for lands designated as ACECs, a Plan of Operation will be required prior to surface-disturbing activities for all mining operations within the ACECs (including those under 5 acres). The Plan of Operation will prescribe "measures to prevent unnecessary or undue degradation and measures to reclaim disturbed areas" and will be subject to BLM surface management. Plan approval may be

delayed pending review by a team of resource specialists. Operators may also be subject to specific stipulations to protect, enhance, or restore ACEC values.

No Scheduled Timber Harvest - These ACECs are Administratively Withdrawn Areas within a Late-Successional Reserve as defined in the Northwest Forest Plan. The objective of this land allocation is to enhance habitat for late-successional and old-growth related species. Limited silvicultural treatments are permitted where they will benefit late-successional characteristics or reduce the risk of catastrophic loss. Much of the ACECs has been determined to be non-productive forest land under the Timber Production Capability Classification (TPCC). If it were determined that timber harvest could enhance ACEC values and Late-Successional characteristics, some future harvest could be proposed, but only after a watershed analysis and late-successional assessment were written and approved.

Management for Special Status and Survey and Manage Species (Plants and Animals) - Management for special status species will be consistent with BLM policy (6840.06), the Endangered Species Act of 1973 (as amended), and approved recovery plans. All alternatives will have a "No Effect" on federally listed species (specifically northern spotted owl, marbled murrelet and peregrine falcon).

While no documented occurrences of Survey and Manage species occur in the ACECs, surveys will be conducted prior to any ground-disturbing activities for the two vertebrate survey and manage species likely to occur. Documented sites will be buffered appropriately, or will otherwise comply with survey protocol and management guidelines currently being developed for these species.

Management of Historic/Cultural Sites - Management of historic/cultural sites will be consistent with the National Historic Preservation Act of 1966, as amended, Section 110(a)(1), which states that "federal agencies

shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency." Management actions will also be consistent with BLM policy on cultural resources (BLM Manual 8100).

Bough cutting of Port-Orford-cedar - Because of the threat to Port-Orford-cedar from the root rot fungus (*Phytophthora lateralis*), no bough cutting will be allowed within the ACECs.

Control of Noxious Weeds - Any noxious weed occurrences will be treated, possibly by various methods. Treatment analysis will be tiered to the EIS for the Northwest Area Noxious Weed Control Program (BLM 1987).

Land Tenure Adjustments - The BLM will pursue land acquisitions and exchanges from willing landowners as determined necessary to benefit ACEC management. To consolidate ownership, top priority will be the proposed exchange between South Coast Lumber Company and BLM (Fig. 2-1).

Private lands proposed for exchange to the BLM total 320 acres and are located in:

T. 37 S., R. 14 W.

- Sec. 1 SW1/4 SW1/4 (40 acres)
- Sec. 12 W1/2 NW1/4 and NW1/4 SW1/4 (120 acres)
- Sec. 13 S1/2 NE1/4 (80 acres)
- Sec. 24 NW1/4 NE1/4, NE1/4 NW1/4 (80 acres)

BLM-administered lands proposed for exchange are not within existing ACECs. Their locations are:

T. 38 S., R. 14 W.

- Sec. 4 SE1/4 SW1/4
- Sec. 5 SW1/4 NE1/4 (80 acres)

T. 37 S. R. 14 W.

- Sec. 14 SE1/4 NW1/4, and Sec. 15 NW1/4 SW1/4 (80 acres)

T. 39 S. R. 14 W.

- Sec. 23 NW1/4 NW1/4 (40 acres)

T. 38 S., R. 14 W.

- Sec. 2 SW1/4 SW1/4 (40 acres)

If the exchange is approved and processed, acquired lands will become public domain land and be included within the ACECs.

Comparison of Alternatives

Table 2-1 provides a comparison of the three alternatives by management actions.

Alternative A is the No Action Alternative which proposes to continue current management. The emphasis of Alternative B (Proposed Action) is protection, conservation, and enhancement of ACEC values, while still providing for the current uses in the area.

Alternative C allows for more dispersed recreation while at the same time allowing for protection, conservation, and enhancement of ACEC values.

Alternative A - No Action

Summary - The No Action Alternative (Alternative A) is the current management which is primarily a general management direction with no site-specific guidelines (Fig. 2-2). These areas were designated as ACECs under the Record of Decision (ROD) for the Coos Bay District Resource Management Plan (1995). Under ACEC designation, the values important to ACEC designation must be protected with site-specific management prescriptions. This alternative will continue management of the ACECs as prior to their designation, but with some added emphasis on protection of ACEC values. No actions that enhance the ACEC values or any recreational developments will be proposed under this

FIGURE 2-1. PROPOSED HUNTER CREEK ACQUISITION PLAN

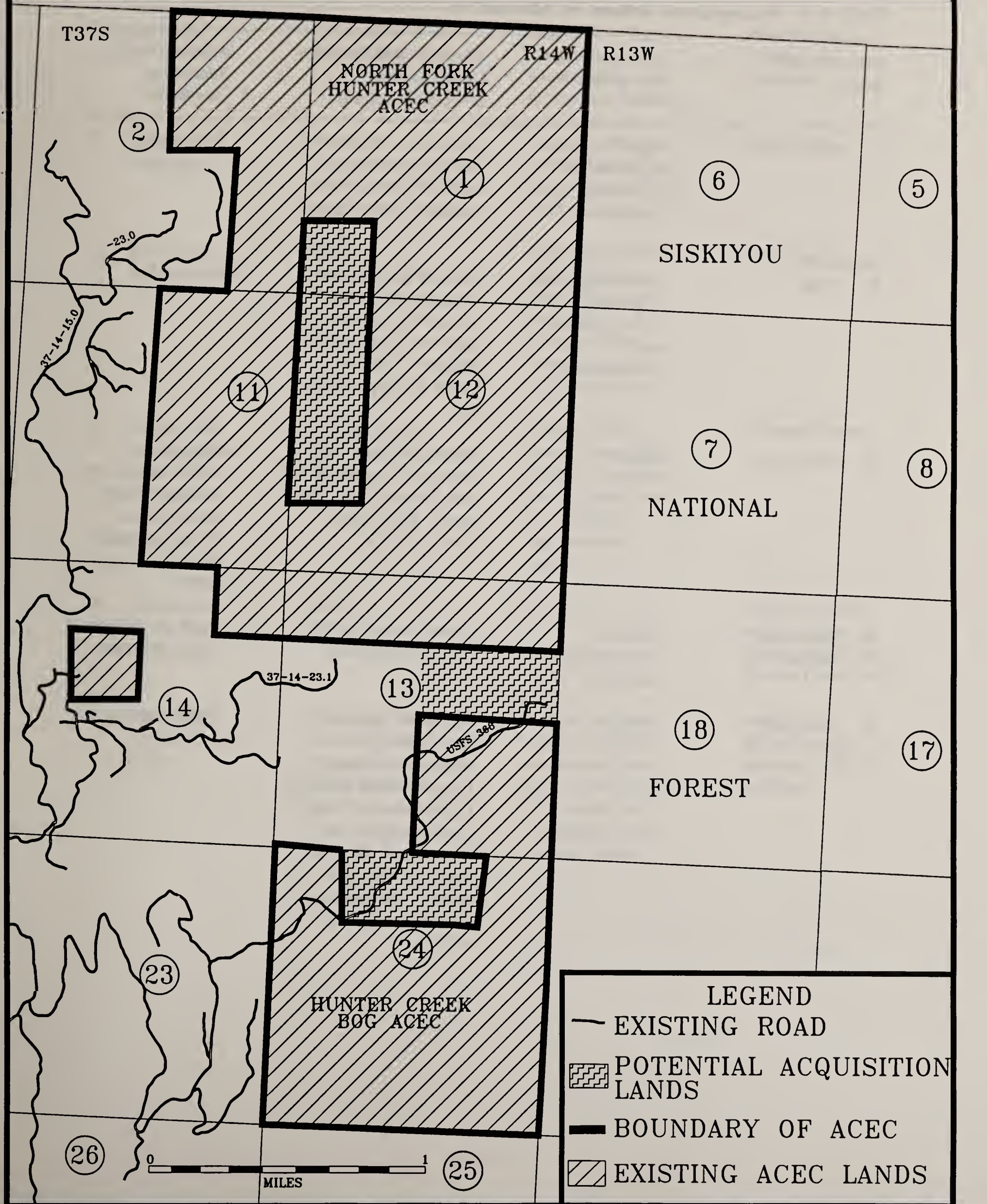


Table 2-1. Management Actions by Alternative.

Management Action	Alternative A (No Action)	Alternative B Resource Conservation (Proposed Action)	Alternative C Recreation Emphasis
1. Minerals	Impose Plan of Operation for all mining operations.	Same as A, plus mineral withdrawal of all ACEC lands without existing mineral claims.	Same as B.
Recreation			
2. Trails	No management of existing trails; no new trail development.	Improve existing trail system in N. Fork Hunter Crk. (approx. 5 mi.), and develop trail adjacent to Hunter Creek Bog (approx. 0.5 mi.)	Same as B.
3. Trail Use	Open	Developed trails only; foot traffic permitted in both Hunter Creek Bog and N. Fork Hunter Creek ACECs.	Open to foot traffic, horse, and mountain bikes, except Hunter Creek Bog trail limited to foot traffic.
4. Motorized vehicles	Open to designated roads and trails.	Closed, except along Hunter Creek road.	Open on designated roads and trails.
5. Camping	Open	Dispersed backpack camping only in designated areas (meadow north of Stone Chair meadow, Stone Chair meadow, and Wren Pond; all greater than 250 feet from water). No camping in Hunter Creek Bog ACEC.	Open, same as A.

Table 2-1. Management Actions by Alternative (cont.)

Management Action	Alternative A (No Action)	Alternative B Resource Conservation (Proposed Action)	Alternative C Recreation Emphasis
6. Signing/ Publicity	None	Sign identifying Hunter Creek Bog along Hunter Creek road.	Same as B.
7. Education/ Interpretation	None	Onsite interpretive signs at Hunter Creek Bog, with emphasis on education and conservation of ACEC values.	Same as B.
8. Group Use (> 10 people)	No restrictions.	Groups using Hunter Creek Bog will be required to have a permit and have a BLM representative onsite.	No restrictions.
9. Picnic Site	None	None	Yes, one picnic table adjacent to parking area long Hunter Creek road.
10. Parking on Hunter Creek Road	No change from current status (capacity approx. 15-20 vehicles).	Limited parking, with 10 vehicle maximum (large area of pullout will be blocked and revegetated with native species).	Same as A (accommodate parking of 15-20 vehicles).

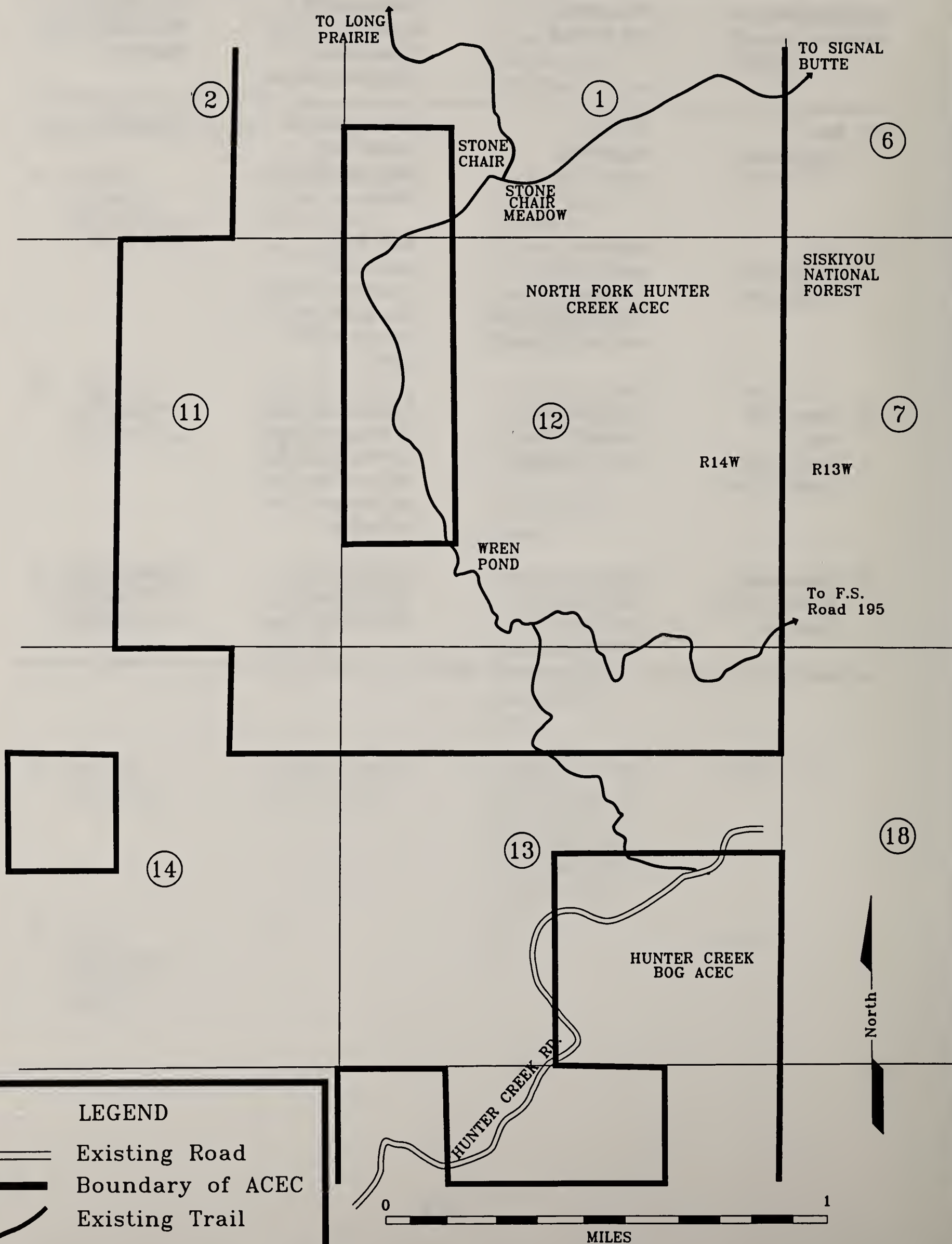
Table 2-1. Management Actions by Alternative (cont.)

Management Action	Alternative A (No Action)	Alternative B Resource Conservation (Proposed Action)	Alternative C Recreation Emphasis
Natural Resource Surveys			
11. Wildlife Including Special Status	Limited to project related surveys or for watershed analysis.	Additional surveys beyond scope of projects (to determine abundance, diversity, and distribution of animals).	Same as B.
12. Vegetation Including Special Status	Limited to project related surveys or for watershed analysis.	Additional surveys beyond scope of projects (e.g., abundance, diversity, and distribution of plants).	Same as B.
13. Fisheries and Stream Surveys	Limited to project related surveys or for watershed analysis.	Additional surveys, beyond scope of projects (e.g., abundance, diversity, and distribution of fish).	Same as B.
14. Cultural Resources	Limited to project related surveys.	Additional surveys, beyond scope of projects, to determine presence and significance of cultural values.	Same as B.
15. Water Quality and Quantity Studies	No	Yes	Yes

Table 2-1. Management Actions by Alternative (cont.)

Management Action	Alternative A (No Action)	Alternative B Resource Conservation (Proposed Action)	Alternative C Recreation Emphasis
16. Fire Suppression	All fires suppressed.	Fire suppression unless fire is degrading ACEC values.	Same as B.
17. Fuel Management Treatments	Hand or mechanical treatments only when ACEC values are being degraded.	Hand and mechanical treatments allowed only to maintain or enhance ACEC values.	Same as B.
18. Prescribed and Prescribed Natural Fires	No prescribed burning; natural fires suppressed.	Prescribed burning in designated areas (Hunter Creek Bog and meadows) and under prescription guidelines.	Same as B.
19. Harvest of Special Forest Products	Open for personal use harvest; no Port-Orford-cedar boughs.	Closed to all Special Forest Product Harvest.	Open only for personal use and by permit only.

FIG. 2-2 ALTERNATIVE A
NO ACTION



alternative. Recreation will remain unconstrained, which may continue to cause resource damage. Under this alternative, mining claimants will be required to submit a Plan of Operation prior to any mining activity, regardless of size of area involved. Follow-up monitoring will be implemented to ensure that ACEC values and resources are being conserved.

Management Actions Proposed for Alternative A (No Action)

Action A-1 - Minerals Management - A Plan of Operation will be required for all mining activities (see Actions Common to All Alternatives).

Rationale - See Actions Common to All Alternatives, Mineral Activities.

#####

Action A-2 - Trails - The trail system will not be managed, and no new trails will be developed.

Rationale - Most trail use is from local residents who are aware of the trails. Further, the current trail system is meeting the demand, therefore no improvements are necessary.

#####

Action A-3 - Trail Use - Trail use will be open to all modes of transportation.

Rationale - Current use levels are expected to remain the same, with primary use on the trails being foot traffic. Motorized traffic (e.g., motorcycles) is rare.

#####

Action A-4 - Motorized Vehicles - The ACECs will remain open to motorized vehicles on designated roads and trails.

Rationale - Levels of motorized use are expected to remain unchanged.

#####

Action A-5 - Camping - Camping will be allowed throughout both ACECs.

Rationale - There are few camping opportunities within the ACECs, due in the North Fork Hunter Creek ACEC to limited access, and in Hunter Creek Bog ACEC to few available areas for camping.

#####

Action A-6 - Signing/Publicity - No directional signing will be posted.

Rationale - The absence of recreational developments under this alternative does not warrant additional signing or publicity.

#####

Action A-7 - Education/Interpretation - No education/interpretation signs will be developed within Hunter Creek Bog or North Fork Hunter Creek ACECs.

Rationale - In keeping with current management, interpretive education is not emphasized in these ACECs. Also, this alternative has a minimal level of activity.

#####

Action A-8 - Group Use of Hunter Creek Bog - Group use will not be subject to any special management.

Rationale - Group use is usually by groups under supervision or with knowledge of the area's fragility. Also, the group use that is occurring does not appear to be impacting ACEC values.

Action A-9 - Picnic Site - No picnic sites will be developed.

Rationale - There has been no public request for picnic facilities within the ACEC.

#####

Action A-10 - Parking at Hunter Creek Bog - The large parking pullout along Hunter Creek road will remain at its current size, which is a capacity of 15-20 vehicles.

Rationale - The pullout does not impact ACEC values.

#####

Action A-11 - Wildlife Surveys (Including Special Status Species) - Surveys for wildlife will be conducted only when projects outside the scope of this plan (e.g., mining activities) are proposed, or for watershed analysis.

Rationale - Impacts to wildlife are expected to be minimal under this alternative, particularly since no surface-disturbing activities are proposed within the ACECs. Surveys conducted prior to any proposed surface mining or other ground-disturbing activities should provide appropriate management for wildlife species.

#####

Action A-12 - Vegetation Surveys (Including Special Status Species) - Surveys for vegetation will be conducted only when projects outside the scope of this plan (e.g., mining activities) are proposed, or for watershed analysis.

Rationale - Surveys conducted prior to any proposed surface mining or other surface-disturbing activity should provide appropriate management for vegetation, especially considering the absence of surface-disturbing activities proposed under this alternative.

Action A-13 - Fishery and Stream Surveys - Surveys for fisheries, including special status species, will be conducted only when projects outside the scope of this plan (e.g., mining activities) are proposed, or for watershed analysis.

Rationale - Impacts to fisheries and their habitat are expected to be minimal due to the absence of surface-disturbing activities within the ACECs. Fishery surveys done for projects outside the scope of this plan, or for watershed analysis, are expected to provide adequate management for fisheries.

#####

Action A-14 - Cultural Resource Surveys - Surveys for cultural/historical resources will only be conducted for projects proposed outside the scope of this plan (e.g., mining activities).

Rationale - The potential impact to cultural resources is expected to be minimal considering BLM is not proposing any surface-disturbing activities within the ACECs under this alternative. Surveys done in areas proposed for mining activity should provide adequate protection for cultural resources.

#####

Action A-15 - Water Quality and Quantity Studies - No water quality and quantity studies will be conducted.

Rationale - Due to the absence of proposed surface-disturbing activities, there are no expected impacts to water quality and quantity.

#####

Action A-16 - Fire Suppression - All fires will be suppressed in the ACEC. Prevention and suppression efforts will concentrate on preventing human-caused fires in the ACEC and restricting any fires occurring within ACEC boundaries from encroaching onto adjacent private and public lands. Fire

suppression and prevention for BLM ACEC land is contracted with the Oregon Department of Forestry (ODF). Suppression strategies on ACEC lands are developed and approved by Coos Bay BLM District personnel to protect resource values. Wildfires escaping initial attack require that BLM personnel, including a Fire Specialist, prepare an Escaped Fire Situation Analysis (EFSA) to decide appropriate suppression responses to protect life, property, and resource values.

Rationale - Because vegetative communities in the ACEC appear to be fire adaptive and fire may actually enhance resource values, certain fire suppression strategies and tactics may degrade resource values. Assigning BLM Resource Advisors and a District Fire Management Officer to fire suppression efforts escaping initial attack can reduce adverse effects to ACEC resource values.

#####

Action A-17 - Fuels Management

Treatments - No manual or mechanized fuels manipulation will occur within ACEC boundaries, unless needed to prevent degradation of ACEC values.

Rationale - Restricting manual and mechanized fuels treatment will help maintain ACEC resource values.

#####

Action A-18 - Prescribed and Prescribed Natural Fires - Prescribed and/or prescribed natural fire will not be used as a means of improving or enhancing ACEC resource values.

Rationale - Restricting prescribed fires will help maintain ACEC resource values.

#####

Action A-19 - Harvest of Special Forest Products - The harvest of special forest products (except for bough cutting of Port-

Orford-cedar) will be allowed for personal use, by permit only.

Rationale - The current harvest level of special forest products and restrictions is meeting present needs.

Alternative B - Resource Conservation (Proposed Action)

Summary - The objective of this alternative is to protect, conserve, and enhance designated ACEC values, while still allowing existing uses. Recreational developments proposed under this alternative are designed to reduce impacts to ACEC values. Under this alternative, mining claimants are required to submit a Plan of Operation prior to all mining activity. Also, the BLM will pursue a mineral withdrawal from all ACEC lands not having existing mineral claims. See Figure 2-3 for locations of management actions under this alternative.

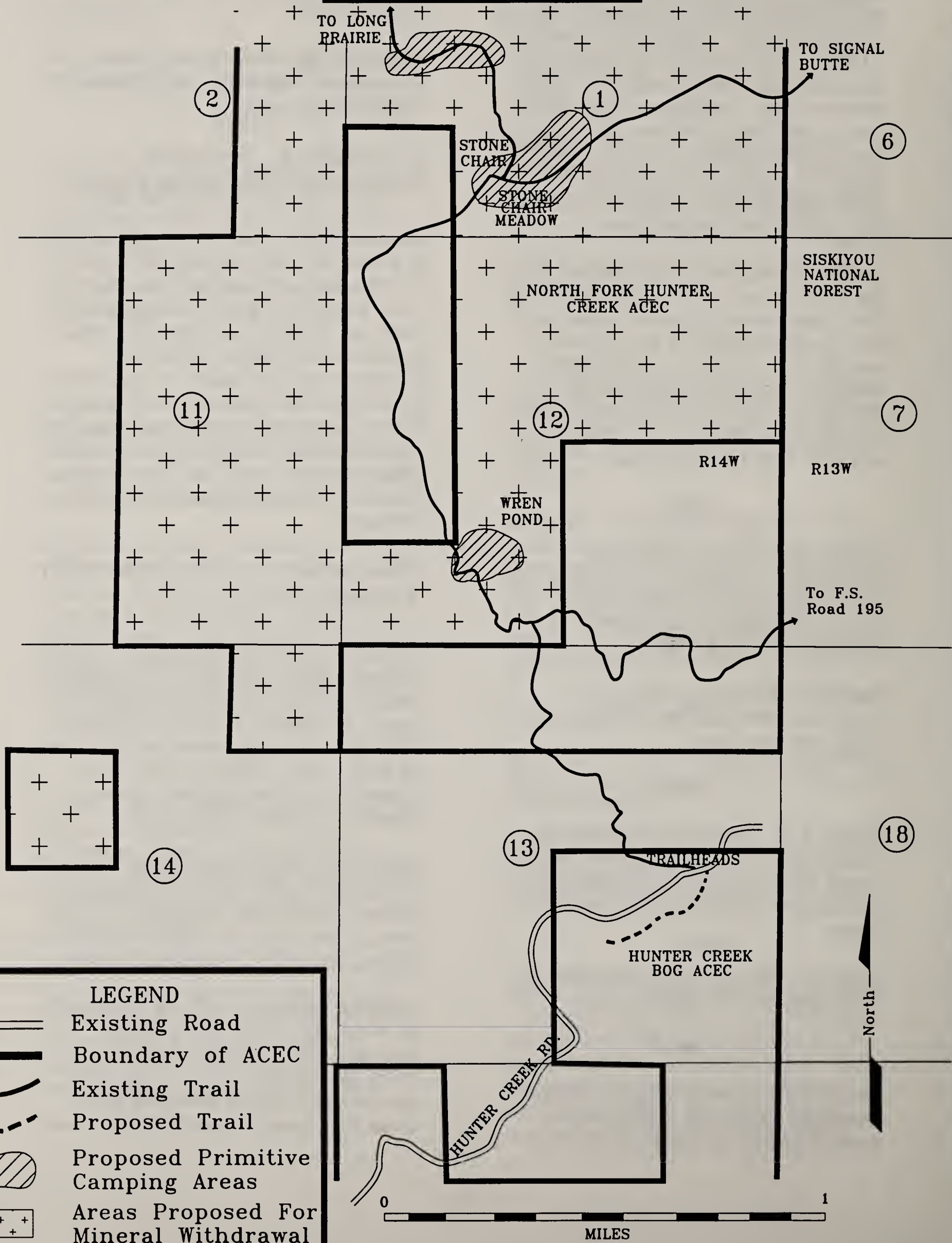
Management Actions Proposed for Alternative B

Action B-1 - Minerals Management - Mining claimants will be required to submit a detailed Plan of Operation, including reclamation measures, regardless of the size of operation. Plan approval may be delayed pending review by BLM. Mining operators may also be subject to specific stipulations to protect, conserve, or enhance ACEC values.

Additionally, the BLM will propose a mineral withdrawal for all ACEC lands not having existing mining claims (approximately 1,600 acres). This includes the entire North Fork Hunter Creek ACEC, except for 320 acres.

Rationale - Requiring a Plan of Operation for all mining activity will protect ACECs' designated values. Mineral withdrawal on ACEC lands without claims will provide additional protection by preventing future claims from being filed on these lands. Any

FIG. 2-3 ALTERNATIVE B
PROPOSED ACTION



withdrawal of land with existing mining claims will be limited to restricted circumstances.

#####

Action B-2 - Trails - The primitive trail system in North Fork Hunter Creek ACEC will be maintained. Trail maintenance will be subject to coordination with adjacent property owners (Forest Service and South Coast Lumber).

Some portions of the trails in North Fork Hunter Creek ACEC may be relocated to reduce their potential to impact ACEC values.

A short trail (0.5 mile) with viewing platforms will be constructed adjacent to Hunter Creek bog (Fig. 2-4). The trail will primarily use old roads and also will not be located in any wetlands. The viewing platforms will: have hand railings to discourage visitors from entering the bog; be constructed with natural materials, such as cedar (no treated lumber will be used); and meet specifications relative to important resource values including wildlife.

NEPA analysis (including site-specific surveys) will be conducted prior to ground-disturbing activities, such as trail development. Also, resource specialists will help determine trail locations to minimize resource impacts.

Rationale - Trail development and relocation will help manage visitor use and reduce impacts associated with human trampling of the special status species and sensitive plant communities in Hunter Creek bog. Using natural materials will minimize leaching of chemicals into the bog and reduce the possibility of affecting water quality. Maintaining the trail to Hunter Creek road will make it easier for recreationists to use the trail system. The trail system will continue to meet the demand of current users.

#####

Action B-3 - Trail Use - Only foot traffic will be allowed on developed trails in Hunter

Creek Bog and North Fork Hunter Creek ACECs.

Rationale - Foot traffic on designated trails do not conflict with ACEC values. While mountain bike use of trails in the ACECs is not currently evident, consideration was given to trends indicating a likely increase in this type of use. Trail use is, however, expected to be limited for several reasons: trail access is limited and relatively unknown to the general public; trails are steep along some portions; and during certain times of the year (spring) the creeks are nearly impassable due to high water flows. Restricting use to foot traffic on the trail adjacent to Hunter Creek bog will help prevent soil erosion into the bog.

#####

Action B-4 - Motorized Vehicles - Both Hunter Creek Bog and North Fork Hunter Creek ACECs will be closed to motorized vehicles, except along Hunter Creek road.

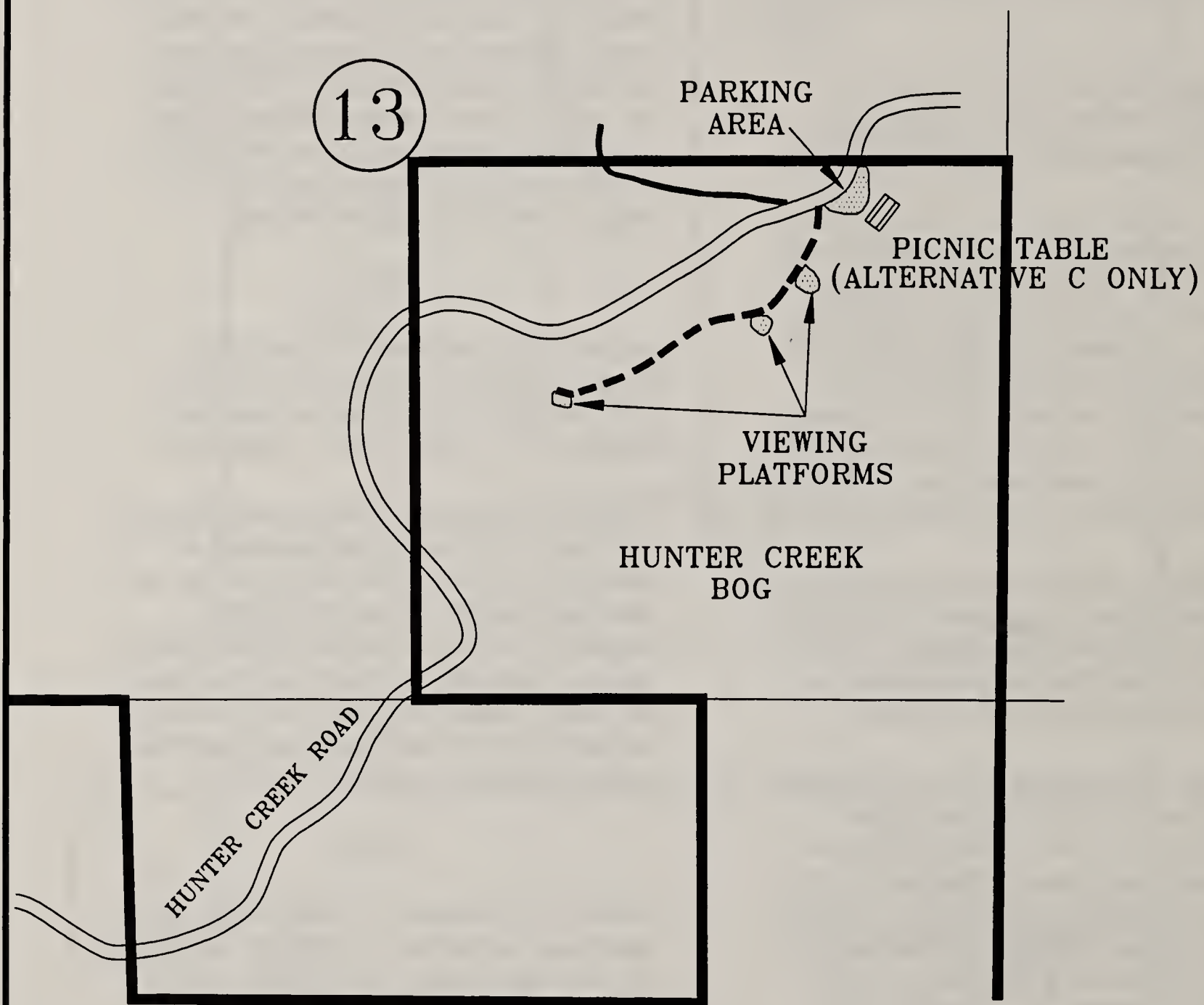
Rationale - Motorized vehicles have potential to degrade ACEC values by damaging or destroying vegetation, increasing erosion, and disturbing wildlife habitat and activity. Motorized vehicle use on the ACECs is very minimal, primarily occurring along old roads and trails. Motorized vehicle use is evident on the North Fork Hunter Creek trail, however, and is beginning to cause some erosion.

#####

Action B-5 - Camping - Certain areas will be designated and posted for camping, including the large open Jeffrey pine meadow around "stone chair" (Stone Chair meadow) and the area around Wren Pond (greater than 250 feet from water). No camping will be allowed in Hunter Creek Bog ACEC. Non-compliance, especially for activity with potential to impact ACEC values, could result in closure of the ACECs to camping.

Rationale - While the ACECS offer few camping opportunities, trail maintenance in

FIG. 2-4 ALTERNATIVES B&C
HUNTER CREEK BOG VIEWING TRAIL



LEGEND

- Existing Road
- Boundary of ACEC
- Existing Trail
- Proposed Trail

0

1/2

MILES

North Fork Hunter Creek ACEC may lead to an increase in backpack type camping there. Having camping limited to designated areas will reduce the potential for impacting ACEC values.

#####

Action B-6 - Signing/Publicity - One sign will be placed near the parking facility along Hunter Creek road. This sign will have the BLM logo and text to identify Hunter Creek Bog and North Fork Hunter Creek ACECs and to note trailhead locations. Small marker signs will be posted along trails.

Rationale - Informing recreationists of trailhead locations will help direct visitor use. Signing will also provide notice of ACEC designation and the need for protection of its resources. Signs on trails will help hikers along trails, which sometimes can be difficult to follow.

#####

Action B-7 - Education/Interpretation - Onsite interpretation/education will be designed for Hunter Creek bog with emphasis on protection and conservation of ACEC values, and the area's unique values. The primary form will be a trail pamphlet with markers or interpretive signs along the Hunter Creek bog trail.

Rationale - Interpretation will increase public awareness of the ACEC's unique biological values. Education about the area's sensitivity will likely reduce the potential for use on non-designated trails.

#####

Action B-8 - Group Use of Hunter Creek Bog - Groups of 10 people or more (e.g., school classes) will be required to apply for a permit from the Coos Bay BLM District Office. Also, a BLM representative (employee/volunteer) will be required to be

onsite when the group is at the Hunter Creek bog area.

Rationale - With larger groups, there is more potential to trample vegetation and disturb wildlife; these disturbances could impact ACEC values. Using a permit system will help guide and monitor the level of use, and having a BLM representative onsite will help restrain the group's use to designated areas.

#####

Action B-9 - Picnic Site - No picnic sites will be developed (same as Alternative A).

Rationale - There has been no demand for picnic facilities here.

#####

Action B-10 - Parking at Hunter Creek Bog - The large pullout near the upper portion of the bog will be improved by placing natural barriers. Adjacent areas will be revegetated with native vegetation. The designated parking area will have a capacity of 10 vehicles.

Rationale - Having clearly marked parking areas helps reduce indiscriminate expansion of parking areas and prevents associated soil compaction/erosion and vegetation trampling.

#####

Action B-11 - Wildlife Surveys (Including Special Status Species) - Surveys will be conducted, beyond those related to development projects, to determine the presence, distribution, and abundance of a variety of wildlife species, including many special status species (e.g., northern spotted owl, marbled murrelet, peregrine falcon, and amphibians).

Rationale - The richness, abundance, distribution, use, and habitat requirements of wildlife species inhabiting the ACECs, including special status species, are relatively

unknown at this time. There is potential habitat for northern spotted owl and marbled murrelet in the northwest corner of North Fork Hunter Creek ACEC. Habitat is also present for other special status species, such as amphibians, but no surveys have been conducted. Information collected may be used in watershed analysis. These surveys, along with vegetation information, will provide information on wildlife habitats within the ACECs.

#####

Action B-12 - Vegetation Surveys (Including Special Status Species) - Surveys will be completed to map plant communities within the ACECs, and special status plant surveys will be conducted in areas not previously surveyed.

Rationale - Vegetation data will provide a data baseline to improve understanding of natural processes within the ACECs. This information will be beneficial in managing wildlife habitat and understanding the area's fire history. Although several special status plant species are located within the ACECs, much of the area has not been surveyed.

#####

Action B-13 - Fishery and Stream Surveys - Fishery surveys will be conducted to determine the distribution and abundance of anadromous and resident fish. Stream habitat inventories will also be conducted.

Rationale - These surveys will provide information about the occurrence of any special status fish stocks, amount of habitat beneficial for fish and stream structure, and potential management that may benefit fish species.

Action B-14 - Cultural Resource Surveys - Surveys to locate cultural and historical resources will be conducted.

Rationale - The presence of existing cultural sites within the ACECs warrants additional

surveys to determine the nature and extent of prehistoric and historic uses in the area.

#####

Action B-15 - Water Quality and Quantity Studies - Studies to determine water quality and quantity will be conducted within Hunter Creek bog. Analysis may include dissolved oxygen, heavy minerals, temperatures, flows, nitrogen, turbidity, and the aquatic macroinvertebrate community.

Rationale - Baseline information will be used for monitoring water quality and quantity impacts from activities such as future mining.

#####

Action B-16 - Fire Suppression - In Administrative Withdrawn Areas (AWAs), including ACECs, the Northwest Forest Plan states "the goal of fire suppression is to minimize the negative impacts of wildfires on ecosystem management objectives." The Late-Successional Reserve (LSR) Assessment will include a fire management plan, which will identify areas where resource values and ecosystem management objectives can be maintained or enhanced through the use of fire.

Fire prevention and suppression are contracted by BLM to the Oregon Department of Forestry (ODF) and are restricted to the protection of resource values. Wildfires escaping initial attack require that BLM personnel prepare an Escaped Fire Situation Analysis (EFSA) to determine appropriate suppression response to protect life, property and resource values. Human-caused fires in the ACEC will be suppressed if they degrade ACEC values or present a threat to other resources, such as timber on adjacent private lands. Daily analysis will be done to identify appropriate suppression for the fire's duration. The resource management team will also identify any rehabilitation, mitigation, and resource monitoring needs required to protect property and resource values.

Some naturally-ignited fires may be allowed to burn in cases where the fire will enhance ACEC resource values and meet land allocation objectives in the fuel management plan. Before allowing a fire to burn in an ACEC, however, an EFSA will be completed to decide appropriate suppression responses and potential impacts on ACEC resource values. Fires allowed to burn may also need to meet specific prescriptions of the fuel management plan and be monitored to ensure prescriptions are followed. Suppression action will be taken if prescriptions are exceeded or if life, property, or resource values are threatened.

Rationale - Although some vegetative communities may appear adapted to periodic fires, certain fire suppression strategies may also degrade those values and therefore need close monitoring and assessment. Initial attack actions identified in the contingency portion of the prescribed fire plan will protect life, property, and resource values on naturally-ignited fires. Preparation of a daily EFSA by the resource management team, along with monitoring, will also help identify fire impacts and determine appropriate suppression strategies.

#####

Action B-17 - Fuel Management Treatments - A Project Plan and a Hazard and Risk Fuel Assessment will be prepared by the resource management team before any fuel project is implemented in the ACECs. The fuel treatment plan will identify areas where alternative fuel treatment methods other than fire (e.g., hand and mechanized methods) can be used to meet land allocation objectives and to maintain or enhance resource values.

Rationale - Hand and mechanized fuel treatment methods can be used to improve ACEC values; reduce fuel/fire hazards; and reduce risk to life, property, and resource values. The Project Plan and the Hazard and Risk Fuel Assessment will provide a means for the management team to identify hazards and

risks with the project and to recommend treatment that will best benefit or enhance ACEC resource values.

#####

Action B-18 - Prescribed and Prescribed Natural Fires - Prescribed and prescribed natural fires may be used to enhance ACEC resource values in areas identified in the fuel management plan and specific to treatments developed by a resource management team. Prescriptions will identify specific burn conditions and guidelines that allow for a natural fire to remain burning or for a management-ignited fire to take place. At a minimum, burn prescriptions will identify: potential impacts to resource values, mitigating measures to reduce adverse impacts, a contingency plan to minimize impacts in unforeseen circumstances, a monitoring plan to maintain quality control over the project, and a rehabilitation plan identifying site restoration and maintenance.

Rationale - Many plant species in the ACECs appear to have adaptations allowing them to regenerate or persist after fires. The fuel management plan may recommend reintroduction of fire, either prescribed or prescribed natural, to enhance or re-establish populations and to curb or eliminate encroaching woody vegetation. Preparing prescriptions specific to each vegetative community will help in recognizing potential impacts to resource values and citing specific burning parameters to be used to reduce those impacts.

#####

Action B-19 - Harvest of Special Forest Products - Both ACECs will be closed to the harvest of special forest products, including but not limited to: mushrooms, cones, beargrass, firewood, forest greens, and wildings.

Rationale - Some ACEC values may be impacted by harvesting of special forest

products. Closing the ACECs to the harvest of special forest products will prevent damage to ACEC values.

Alternative C - Recreation Emphasis

Summary - Alternative C will increase recreation opportunities within the ACECs while still protecting, conserving, and enhancing ACEC values (Fig. 2-5). Recreation developments will be designed to enhance recreational activities while reducing impacts.

Management Actions Proposed for Alternative C

Action C-1 - Minerals Management - As in Alternatives A and B, a Plan of Operation will be required for all mining operations, regardless of size, within the ACECs.

BLM will also propose mineral withdrawal on lands within the ACECs that do not currently have existing mineral claims.

Rationale - The Plan of Operation and subsequent review by BLM personnel will help protect ACECs' designated values. Mineral withdrawal on ACEC lands without claims will add additional protection to ACEC values by preventing future claims from being filed on these lands.

#####

Action C-2 - Trails - The trail system in North Fork Hunter Creek will be improved, and a trail will be developed adjacent to Hunter Creek bog. Improvement may include rerouting the trail to reduce erosion impacts and connecting the trail system to Hunter Creek Road at the proposed parking area. This will result in a trail of approximately 5 miles from Hunter Creek road to the trailhead near Signal Buttes (Forest Service). Since the trail begins on Forest Service lands to the east and crosses South Coast Lumber property,

coordination with these landowners will be initiated prior to trail improvement.

Rationale - Trail improvement and development will help direct and manage visitor use, which will reduce potential for impacts to ACEC values.

#####

Action C-3 - Trail Use - Trails will be open to foot, horse and mountain bike traffic, except for the trail around Hunter Creek bog which will be open only to foot traffic.

Rationale - Having most trails open to foot, horse, and mountain bike traffic will provide a wide opportunity for a varied number of users to utilize the trails in North Fork Hunter Creek ACEC. Restricting trail use around Hunter Creek bog will help protect sensitive plant communities.

#####

Action C-4 - Motorized Vehicles - The ACECs will remain open to motorized vehicles on designated roads and trails (same as A-4).

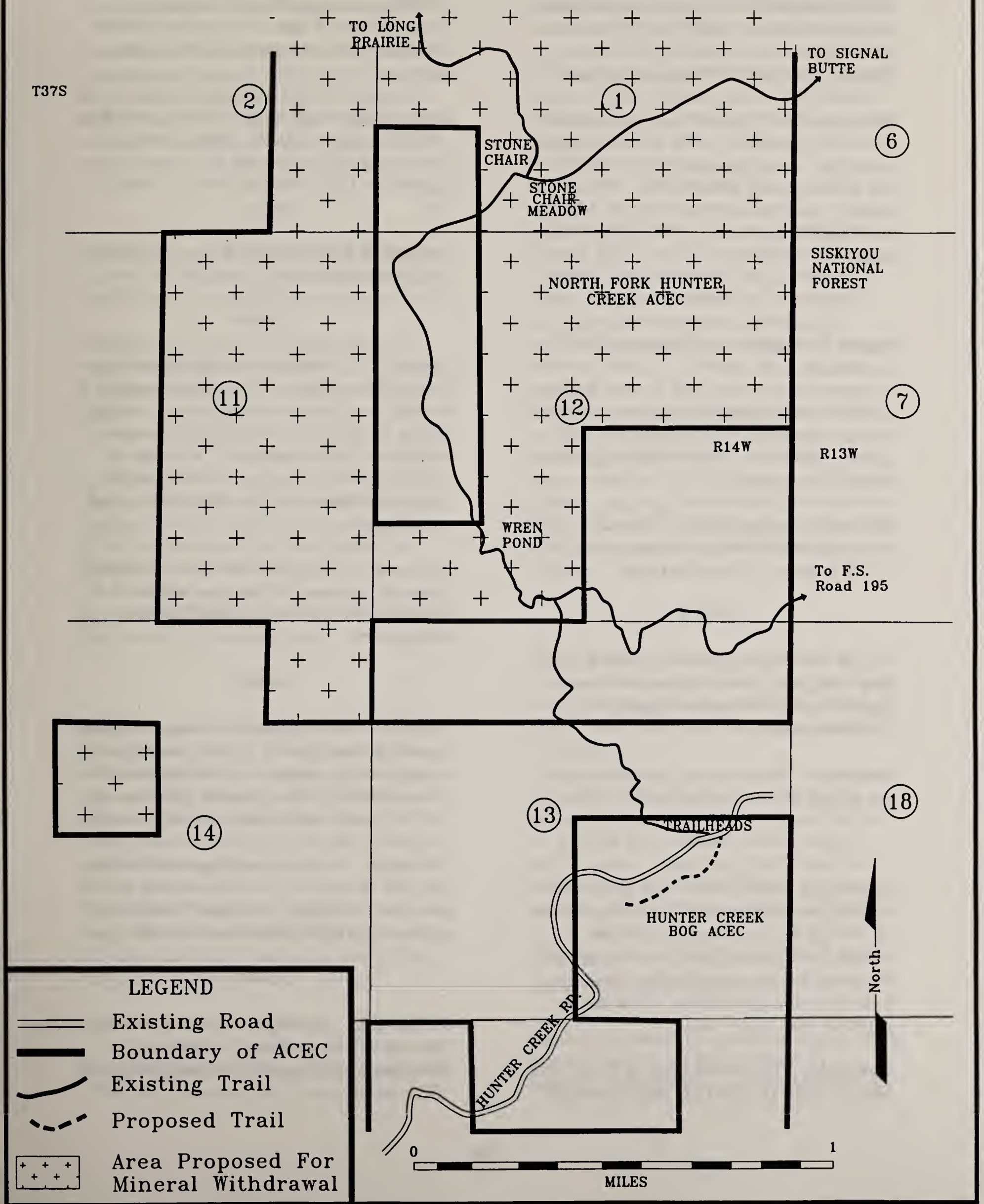
Rationale - The present level of motorized use is not expected to change and is not impacting ACEC values.

#####

Action C-5 - Camping - Camping will be allowed throughout the ACECs (same as A-5).

Rationale - There are few camping opportunities within the ACECs, due in North Fork Hunter Creek ACEC to limited access, and in Hunter Creek Bog ACEC to few available camping areas.

FIG. 2-5 ALTERNATIVE C
RECREATION ALTERNATIVE



Action C-6 - Signing/Publicity - One sign will be placed near the parking facility along Hunter Creek road. This sign will have the BLM logo and text to identify the site as Hunter Creek Bog ACEC and a trailhead.

Rationale - The sign will serve as a means of informing recreationists that a trail is present and of explaining the importance of the bog and its designation as an ACEC. While inviting more recreational use of the area, the sign will also serve to educate people about resource protection.

#####

Action C-7 - Education/Interpretation - As in Alternative B, onsite interpretation/education will be used at Hunter Creek bog with emphasis given to protection and conservation of ACEC values. The primary interpretive media will be signs along Hunter Creek bog trail.

Rationale - Interpretation will increase public awareness and stewardship in protecting the ACEC's unique biological values.

#####

Action C-8 - Group Use of Hunter Creek Bog - No group use restrictions will be imposed under Alternative C (same as Alternative A).

Rationale - The group use that occurs does not appear to be impacting ACEC values.

#####

Action C-9 - Picnic Site - One picnic table will be placed adjacent to the parking lot, out of view of the road, near the trailhead to Hunter Creek bog. One trash receptacle will be placed and maintained at the picnic site from May through October, which are the expected peak use months.

Rationale - Trail development in North Fork Hunter Creek (Action C-2) may encourage

visitors to stay for longer time periods and will provide picnic opportunities. A trash receptacle should reduce the amount of litter, which has increased appreciably in recent years.

Action C-10 - Parking at Hunter Creek Bog - The large parking pullout along Hunter Creek road will be retained as is, with a capacity of 15-20 vehicles (same as Action A-10).

Rationale - ACEC values are not impacted by parking along this road.

#####

Action C-11 - Wildlife Surveys (Including Special Status Species) - As for Alternative B, in addition to project-related surveys, surveys will be conducted to determine the presence, distribution, and abundance of a variety of wildlife species, including northern spotted owl, marbled murrelet, peregrine falcon, and amphibians.

Rationale - This type of survey information is relatively unknown for this area and needs to be compiled to address wildlife habitat management.

#####

Action C-12 - Vegetation Surveys (Including Special Status Species) - As in Action B-12, surveys will be done to map the different plant communities, and special status plant surveys will be done for areas not previously surveyed.

Rationale - Survey data will provide baseline data that is important in understanding natural processes, including fire history, and in addressing wildlife habitat management.

#####

Action C-13 - Fishery and Stream Surveys - Surveys will be conducted to determine the distribution and abundance of anadromous and

resident fish; stream habitat inventories will also be conducted (same as Action B-13).

Rationale - These surveys will help determine: importance of these streams to fish; occurrence of any special status fish stocks; amount of habitat beneficial for fish and stream structure; and desired management that may benefit fish species.

#####

Action C-14 - Cultural Resource Surveys - Surveys will be conducted to locate cultural and historical resources (same as Action B-14).

Rationale - Presence of existing cultural resources warrants further studies to determine the nature and extent of human uses in the area.

#####

Action C-15 - Water Quality and Quantity Studies - Studies will be conducted in Hunter Creek bog to determine water quality and quantity (same as Action B-15).

Rationale - These studies will provide baseline data to help guide management.

#####

Action C-16 - Fire Suppression - A fuel management plan will be a part of the Late-Successional Reserve Assessment (same as Action B-16). The plan will identify areas where resource values and ecosystem management objectives can be maintained or enhanced through fire.

Rationale - Site-specific design for fire suppression will provide appropriate measures to protect the ACEC values, as well as life, property and other resource values.

#####

Action C-17 - Fuel Management Treatments - The fuel treatment plan, as part of the LSR

Assessment, will identify areas appropriate for alternative fuel treatment including hand and mechanized methods (same as Action B-17).

Rationale - Alternative treatments to fire may improve ACEC values; reduce fire hazards; and reduce risk to life, property, and resource values.

#####

Action C-18 - Prescribed and Prescribed Natural Fires - ACEC resource values may be enhanced using prescribed and prescribed natural fires, per site-specific assessment of each vegetative community recognizing specific fire prescriptions and potential impacts (same as Action B-18).

Rationale - Aerial photographs dating since the 1940s and the current vegetation composition indicate many vegetative communities in the ACEC appear to be fire adapted, implying fire is needed to enhance or re-establish certain vegetative populations and to curb invasion of encroaching woody vegetation.

#####

Action C-19 - Harvest of Special Forest Products - Harvest of special forest products, with the exception of Port-Orford-cedar bough cutting, will be allowed for personal use by permit only.

Rationale - The amount of special forest product harvest is relatively low, and harvest for personal use is not expected to impact ACEC values. Restricting Port-Orford-cedar bough cutting will reduce the risk of spreading the root rot disease into uninfected stands.

Alternatives Considered But Not Analyzed in Detail

Another alternative (Establishing Hunter Creek Bog and North Fork Hunter Creek as a Research Natural Area) was considered, but

dropped from indepth analysis. This alternative involved proposing all ACEC lands for mineral withdrawal, requiring a validity exam for all existing mining claims. If claims proved valid, the mining claimants could file for patent and purchase of the lands under the Mining Law of 1872. Patent approval and purchase would remove the lands from public ownership.

Also, if the areas were selected as a Research Natural Area (RNA), the BLM would lose recreational management flexibility in the area. Recreation impacts would continue and possibly increase in the future. Also, if the areas were designated as an RNA, no trails could be developed to reduce impacts.

This alternative would also require an RMP plan amendment since under the RMP these areas were designated as ACECs.

Chapter 3 - Affected Environment

This chapter describes the general physical, biological, and social environment that potentially could be affected by this plan.

Watershed and Riparian Areas

Watershed - Hunter Creek Bog and North Fork Hunter Creek ACECs are entirely within the Hunter Creek watershed. North Fork Hunter Creek runs along the northern portion of the North Fork Hunter Creek ACEC, with the southern portion of this ACEC draining into the main fork of Hunter Creek. Streams within Hunter Creek Bog ACEC drain almost entirely into the main fork of Hunter Creek, except for the southern portion which drains into the South Fork of Hunter Creek. These streams are largely high gradient streams, except for the area within Hunter Creek bog.

The most unique hydrological feature within the ACECs is Hunter Creek bog. By definition, however, Hunter Creek bog is not actually a bog but a fen, since its water is from many small springs and streams. A true bog acquires all of its moisture from precipitation. The springs and streams that feed into the bog enter in several places and merge in some areas to form small ponds. A unique feature in one area is the unusual occurrence of both an acid and an alkaline pond (Baker, no date). The portion of the bog's watershed on Siskiyou National Forest is designated as a Botanical Interest Area.

All but one stream entering the bog drain over ultramafic rock (rock containing high concentrations of magnesium and iron) (Brooks 1987). In many areas, the streams flow underground and are difficult to follow. The gradient within the bog is nearly flat. The water table within the bog is generally perched atop semi-impervious lateritic soils and near surface bedrock. The semi-impervious lateritic (iron rich) soils enable recharging of the

system which maintains equilibrium with the discharge.

The bog and watershed are extremely unique from a limnological viewpoint (McKee 1976). Unlike the intermittent stream that drains the non-ultramafic portion of the bog watershed, the streams that drain the ultramafic portion have very few macroinvertebrates and aquatic plants. These invertebrate processors of organic debris are usually common in coastal streams with partial shade. There is also very little periphyton or phytoplankton in these streams. It is unclear whether the low level of these components is caused by the water's acidity, lack of dissolved oxygen, or unfavorable nutrient regime. No studies have been done to determine water chemistry or quality within the bog.

Riparian Area - Riparian areas within the ACECs typically are narrow, with most streams having steep gradients and v-shaped drainages. North Fork Hunter Creek and its tributaries are dominated by hardwood forests of red alder (*Alnus rubra*), bigleaf maple (*Acer macrophyllum*), myrtle (*Umbellularia californica*), and tan oak (*Lithocarpus densiflorus*), with scattered Douglas-fir (*Pseudotsuga menziesii*) and Port-Orford-cedar (*Chamaecyparicus lawsoniana*). This riparian area is among the finest remaining examples of riparian vegetation in western Curry County. The majority of the riparian zones in Hunter Creek Bog ACEC are dominated by Port-Orford-cedar.

Geology and Soils

Most of Hunter Creek bog is on a large ancient landslide deposit. The bog is located in a depression in the center of this landslide deposit, and is surrounded on the east, south and west by scarps caused by movement of the slide material away from undisturbed ground. The northern portion is hummocky and at the frontal portion of the landslide. Much of the western slope of the watershed is of different geology due to altered sedimentary rocks. A small island of non-ultramafic rocks also

occurs in the center of the watershed adjacent to the bog.

The area is underlain by deeply weathered and leached ultramafic rock, which is composed primarily of peridotite with serpentine occurring locally near shear zones. This unit intruded the basement rocks of the Galice Formation during the middle of the Upper Jurassic Period (approximately 140 million years ago). It was subsequently metamorphosed and thrust over the younger Otter Point Formation, sheared and then leached, concentrating the nickel and cobalt.

The dominant soil is a deep, fine, cobbly, silty, clay loam (Unit 503 series) formed in materials weathered from serpentine and peridotite. Depth to the black and greenish bedrock is at least 40 inches. Soil color is reddish brown to red, and texture throughout is about 10 to 30 percent rock fragments. Other intrusions of unnamed soil series occur throughout the ACECs.

An unnamed and undescribed organic (bog) soil is an extremely important part of the bog ecosystem. This soil, in conjunction with the other important bog characteristics, supports a unique plant community. Casual observations indicate this soil is a black, poorly drained, organic soil (histosol) that likely was influenced by the "perched" water table. These organic deposits are probably only a few feet deep and likely occurs over either the Unit 503 soils described above, or directly over peridotite or serpentine bedrock. Water from springs appears to keep these organic deposits saturated year round.

Vegetation (Including Special Status Species)

Vegetation - Hunter Creek Bog and North Fork Hunter Creek ACECs have the highest plant diversity of any representative area within the Coos Bay BLM District.

Approximately 300 plant species, representing 71 plant families (taxonomy based on Hickman 1993), occur within the ACECs (Appendix A).

This high plant diversity results from many different plant communities occurring over a small area, in combination with the area's previous disturbance events (e.g., fires) and its complex geology and soil types. Due to the proximity of Hunter Creek bog to the ocean, the vegetation is somewhat different from other serpentine bogs and fens in the Illinois River Valley. The contrast in vegetation types is striking along the contact zones between ultramafic (serpentine) soils and non-ultramafic soils.

Plant communities on non-ultramafic rock are dominated by Douglas-fir, tanoak, and Pacific madrone (*Arbutus menziesii*) with small amounts of Port-Orford-cedar. The understory is dominated by sword fern (*Polystichum munitum*) and typically has a few herbs.

Serpentine soils have many vegetation types due to differences in soil depth, available water gradients, and previous disturbances such as fires (McKee 1976). These communities typically are dominated by trees in the *Pinus* genus. The ACECs have five pine species: lodgepole pine (*P. contorta* var. *murrayana*), sugar pine (*P. lambertiana*), Jeffrey pine (*P. jeffreyi*), knobcone pine (*P. attenuata*), and western white pine (*P. monticola*).

While vegetation is quite patchy in these communities, there are four forest types:

- Jeffrey pine forest, typically along the ridges and upper slopes
- Lower-slope mixed conifer forest with a greater understory of shrubs
- Early successional forest dominated by knobcone and lodgepole pine with an extremely dense understory of shrubs
- Riparian forest dominated by Port-Orford-cedar, Douglas-fir and hardwoods.

The Jeffrey pine community is dominated by Jeffrey pine with an understory primarily composed of grasses, including two species of onion-grasses (*Melica hartfordii* and *M. subulata*), blue wildrye (*Elymus glaucus*), and

California oatgrass (*Danthonia californica*). There is also a high diversity of wildflowers.

The mixed conifer forest includes an overstory of western white pine, Douglas-fir, Jeffrey pine, and Port-Orford-cedar. The shrub component is rather high, but the most common are huckleberry oak (*Quercus vaccinifolia*), California coffeeberry (*Rhamnus californica* ssp. *occidentalis*), and red huckleberry (*Vaccinium parvifolium*).

The knobcone and lodgepole forest includes these two species as the dominant trees with a shrub component dominated by California coffeeberry, canyon live oak (*Quercus chrysolepis*), and tan oak. These communities apparently have burned within the last 50 years and have been influenced by repeated fires over time.

Along the main creek in North Fork Hunter Creek ACEC is a relatively large stand of Douglas-fir estimated to be at least 200 years old. This stand is on non-ultramafic rock and has not had any recent disturbance (e.g., logging or fire). The understory is primarily sword fern, and the riparian area has many hardwood species.

Other unique plant communities interspersed throughout the ACECs include the boggy wet areas, which are dominated by California pitcher-plant (*Darlingtonia californica*). These areas occur in all three of the serpentine forest communities.

Another unique plant community in the North Fork Hunter Creek ACEC is the Oregon white oak (*Quercus garryana*) savanna. This community is unique because of its closeness to the Pacific Ocean and relative rarity along the west side of the Siskiyou Mountains.

The disturbance history of the ACECs, as charted for the Klamath Geologic Province, shows fire as the most important disturbance factor (Atzet and Martin 1991). Removal or reduction of fire through long-term fire protection has altered vegetation and fuels,

increased the risk of severe fires, and in some cases reduced certain resource values (Arno and Brown 1991).

Fire has played a major role in the species composition and structure of plant communities within the ACECs, as evidenced by the presence of knobcone and lodgepole pine. Knobcone pine indicates past high intensity burns in the last 50-100 years (Agee 1993). Historic fire maps, aerial photographs, and fire scarred trees indicate fires occurred periodically throughout the area.

The normal fire period is from July until the first substantial fall rains. The primary ignition source has been lightning and, until this century, Native Americans. Reduction in ignition sources, as well as increased fire protection/suppression, are primary reasons for fire being less of a factor in maintenance of biological diversity and productivity.

Most areas that support undisturbed stands of Port-Orford-cedar are in the North Fork Hunter Creek ACEC, but Hunter Creek Bog ACEC has some smaller stands. This species has been impacted throughout its range by the introduced Port-Orford-cedar root rot (*Phytophthora lateralis*), and there are very few remaining uninfected stands that can be protected. Port-Orford-cedar in the bog contains some of the highest concentrations of Port-Orford-cedar root rot spores south of the Rogue River (Forbes, pers. comm.).

While some noxious weeds are found on disturbed sites, primarily along roads, no infestations of noxious weeds are known to occur within either ACEC.

Special Status Plants - The foremost botanical value of the ACECs is its concentration of special status plant species, including 14 known or suspected species (Table 3-1).

Currently, no federally listed plant species occurs within the ACECs but there are populations of one federal candidate species (Waldo gentian). Many of the area's special

Table 3 - 1. Special Status Plant Species Documented or Suspected to Occur Within Hunter Creek Bog and North Fork Hunter Creek ACECs

Scientific Name	Common Name	Occurrence	Status
<i>Allium bolanderi</i>	Bolander's onion	Documented	Bureau Assessment
<i>Arctostaphylos hispidula</i>	Howell's manzanita	Documented	Bureau Assessment
<i>Cardamine nuttallii</i> var. <i>gemmata</i>	purple toothwort	Suspected	Federal Candidate, Category 2
<i>Carex gigas</i>	Siskiyou sedge	Suspected	Bureau Assessment
<i>Cypripedium californicum</i>	Calif. lady-slipper	Documented	Bureau Tracking
<i>Darlingtonia californica</i>	Calif. pitcher-plant	Documented	Bureau Tracking
<i>Erigeron delicatus</i>	Del Norte fleabane	Suspected	Bureau Assessment
<i>Gentiana setigera</i>	Waldo gentian	Documented	Federal Candidate, Category 2
<i>Hieracium bolanderi</i>	Bolander's hawkweed	Documented	Bureau Assessment
<i>Monardella purpurea</i>	Siskiyou monardella	Suspected	Bureau Assessment
<i>Poa piperi</i>	Piper's bluegrass	Documented	Bureau Assessment
<i>Salix delnortensis</i>	Del Norte willow	Suspected	Bureau Assessment
<i>Sidalcea malvaeflora</i> ssp. <i>patula</i>	coast checker mallow	Documented	Bureau Sensitive
<i>Trillium angustipetalum</i>	giant purple trillium	Documented	Bureau Assessment

Source: ONHP 1993

status plants are endemic (i.e., only grow in a certain area) to the Siskiyou Mountains of southwest Oregon and northwest California.

The nine known special status plant species found within the ACECs are described below:

Bolander's onion (*Allium bolanderi*) - This species grows in the Siskiyou and Klamath Mountains of southwestern Oregon and northwestern California. Bolander's onion occurs in heavy soils in rocky, serpentine meadows. One occurrence has been documented within the ACEC, but has not been observed in recent years.

Howell's manzanita (*Arctostaphylos hispidula*) - Like Bolander's onion, this species also grows in southwestern Oregon and northern California. Its habitat is rocky serpentine areas. Three occurrences of this species have been documented within the ACECs.

California lady-slipper (*Cypripedium californicum*) - This plant grows along streambanks and springs, usually in serpentine soils. In Oregon, California lady-slipper occurs only in the Siskiyou Mountains. Three occurrences of this species are documented within the ACECs.

California pitcher-plant (*Darlingtonia californica*) - This insectivorous species typically grows in serpentine bogs with cool flowing water (Stansell 1980). Its range follows serpentine deposits along the Oregon coast southward to northern California. For many years, California pitcher-plant has been threatened with illegal collection, resulting in its placement on sensitive species lists. This species grows in the bog and spring areas in Hunter Creek Bog ACEC.

Waldo gentian (*Gentiana setigera*) - This plant grows in serpentine bogs and wet sloping meadows in the Siskiyou and Klamath Mountains of southwest Oregon and extreme northwest California (Kagen 1990). Two

occurrences of Waldo gentian occur within Hunter Creek Bog ACEC.

Bolander's hawkweed (*Hieracium bolanderi*) - Bolander's hawkweed grows in dry forests, typically on serpentine soils. The range of this species includes the Siskiyou Mountains of southwest Oregon and northwest California. One occurrence of this species has been documented within the ACEC.

Piper's bluegrass (*Poa piperi*) - This species is another Siskiyou Mountain endemic. Its habitat includes open forests, rock outcrops, and meadows, typically on serpentine soils. This species occurs in the open Jeffrey pine forests in both ACECs.

Coast checker mallow (*Sidalcea malvaeiflora* ssp. *patula*) - This plant grows in low elevation meadows and openings from Curry County, Oregon to Humboldt County, California. One occurrence has been reported from within the ACECs but has not been recently documented.

Giant purple trillium (*Trillium angustipetalum*) - This species was recently located in North Fork Hunter Creek ACEC, and more populations are likely to be present in the area. Giant purple trillium occurs in moist coniferous forests. In Oregon, this species occurs only in western Curry County, but is more common and widespread in California.

Many other species once considered special status occur within the ACEC. These have been taken off the rare plant listings as they have been found to be more abundant, or threats to their habitat were determined to be minimal. Some of these species include:

- Vollmer's lily (*Lilium pardalinum* ssp. *vollmeri*)
- Serpentine phacelia (*Phacelia corymbosa*)
- Howell's desert parsley (*Lomatium howellii*)

- Fringed pinesap (*Pleurocospora fimbriolata*)
- Evergreen everlasting (*Antennaria suffrutescens*)
- Brook trillium (*Trillium rivale*)
- Fairy-slipper (*Calypso bulbosa*)
- Howell's horkelia (*Horkelia sericata*)
- Golden iris (*Iris innominata*)
- Giant chain fern (*Woodwardia fimbriata*)
- Oregon fawn lily (*Erythronium oreganum*)
- Del Norte pea (*Lathyrus delnorticus*)
- Parry's hawkweed (*Hieracium parryi*)

Wildlife (Including Special Status)

Wildlife - The high diversity of plant communities and habitats at Hunter Creek Bog and North Fork Hunter Creek ACECs support a large wildlife species richness, including some special status animals. Over 100 wildlife species have been observed in the area (Bowen et al. 1982; Appendix B). These observations have primarily been incidental by wildlife enthusiasts and biologists, as few wildlife inventories have been conducted within the ACECs.

The diversity of habitats supports all major groups of wildlife (mammals, birds, herptiles), as described below:

Mammals - Both ACECs provide habitat for many species of mammals. Since surveys focusing on these species have not occurred within the area, the information provided in this section is based on habitat availability within the ACECs. The most conspicuous mammals are black-tailed deer, Roosevelt elk and black bear. The oak savannas and open Jeffrey pine forests provide excellent habitat for black-tailed deer. These areas provide excellent forage while the surrounding shrub, mixed-conifer and Douglas-fir forests provide thermal and hiding cover.

There are only small populations of elk in Curry County, and elk use within the ACECs is relatively unknown. Elk sign was observed in the ACECs, however, during the summer of 1994 (Langenstein and Guetterman pers.

comm.). Also, elk are suspected to move through the area to use the meadows and open forests for forage and the more dense forests for cover.

Black bear and their sign have been regularly observed within the ACECs. The diversity of habitats and high quantity of fall forage (California coffeeberry and other berry producing shrubs) make this area outstanding for black bear. Cougar also have been reported in the area, and are dependent on populations of deer. Since the ACECs provide much habitat for blacktail deer, there appears to be an ample prey base for cougar. The open meadows and rock outcrops also provide hunting opportunities for cougars. Coyotes and foxes also have been observed.

In addition, the ACECs provide habitats for numerous small mammals such as western gray squirrel, porcupine, chickaree, shrews, woodrats, and chipmunk. The forests provide habitat for arboreal (tree-dwelling) mammals, while the meadows and rock outcrops provide habitat for ground-dwelling species. Populations of these species, however, are unknown.

Relatively few bat surveys have been conducted, and only a small portion of the area has been surveyed. Surveys conducted to date have not located any bats. The 1982 proposal by Bowen et al. listed the lump-nosed bat (*Plecotus townsendii*) as the only bat within the area, although several species are likely to occur. The availability of habitat (e.g., caves, rock crevices, and hollow trees) is relatively unknown.

Birds - The diversity and abundance of bird species in the ACECs is also relatively unknown. The open and mixed conifer forests provide habitat for forest-dwelling raptors such as sharp-shinned and Cooper's hawks. No nest sites have been documented for larger raptors, such as redtail hawks, but these have been observed in the area. The open Jeffrey pine forests, which may provide ample forage

for small mammals and reptiles, are possible raptor nesting locations within the ACECs.

Woodpecker habitat is dependent on the number of snags available for nesting and the amount of coarse woody debris for foraging. The amount of snags within the ACECs is relatively unknown, but based on the plant communities they would appear to be concentrated in older forests. Four species of woodpeckers (common flicker, yellow-bellied sapsucker, hairy woodpecker, and white-headed woodpecker) have been observed within the ACEC (Bowen et al. 1982). The most notable is the observation of a white-headed woodpecker, which would make this the western most sighting of this species. This species typically occurs east of the Cascade crest in Ponderosa pine forests.

Neotropical migratory birds (birds that migrate north each spring to breeding grounds in North America, then fly south to winter in Central and South America) are of concern due to nationally declining populations. The diversity of neotropical migratory birds within the ACECs is unknown.

Reptiles and Amphibians - The habitats within the ACECs support a diversity of reptiles and amphibians. The rock outcrops, open meadows, and forests provide excellent habitat for reptiles, such as southern alligator lizard and western skink, to bask and warm themselves⁴³⁴ and forage for prey. The grasslands provide cover and a forage base for snakes such as western racer, rubber boa, and ringneck snakes.

The large number of springs and seeps, along with some older late-successional forests, provide habitat for several species of amphibians. Some of these are special status, as discussed in the next section. These species require cool moist habitats, either under large woody debris, or in ponds, springs, and small streams. Species dependent on these habitats include: Dunn's salamander, California slender salamander, Pacific giant salamander, and ensatina. Some surveys for these species,

although not extensive, have been conducted within the ACEC.

Special Status Animals - Many special status animal species have been documented or are suspected to occur (meaning habitat is present) within the ACECs (Table 3-2) which is one of the reasons for ACEC designation. At this time, no federally listed animal species are known to occur within either ACEC, but there is potential habitat for northern spotted owl, marbled murrelet, and peregrine falcon in the northern part of North Fork Hunter Creek ACEC and adjacent Forest Service lands. This area has old-growth Douglas-fir and Port-Orford-cedar estimated to be 200 years old. The high number of rock outcrops and pinnacles in and adjacent to the ACECs provides some nesting opportunities for peregrine falcon.

Following is a brief description of the four special status animal species documented within the ACECs:

Clouded salamander - This salamander lives in moist forests, forest edges, and fire-caused clearings under loose bark on the ground or in trees, and in rotten logs and cliff cracks (Nussbaum et al. 1983). Although few surveys for this species have been done in this area, clouded salamanders have been documented in Hunter Creek Bog ACEC and are likely to occur throughout the late-successional forests in both ACECs.

Mountain quail - The primary reason for the special status of the mountain quail is limited populations east of the Cascades. West of the Cascades, mountain quail are more abundant, but population trends are unknown. This species lives in brushy mountain forests. Mountain quail have been observed in areas adjacent to the ACECs, near the edges of clearcuts, but habitat for this species appears to be abundant within the ACECs also.

Red-legged frog - The primary concern for the special status of the red-legged frog is its limited populations in the Willamette Valley.

Table 3-2. Special Status Animal Species Occurrence (Documented or Suspected) Within Hunter Creek Bog and North Fork Hunter Creek ACECs. (Note: Reference footnote on Table 3-32 in Coos Bay RMP [1994] for explanation of status categories. Any differences between the status listings in the district RMP and this table are due to changes in status listings.)

Scientific Name	Common Name	Occurrence	Status
<i>Aneides ferreus</i>	Clouded salamander	Documented	Bureau Tracking, State Undetermined
<i>Arborimus albipes</i>	White-footed vole	Suspected	Federal Candidate, Category 2; State Undetermined
<i>Ascaphus truei</i>	Tailed frog	Suspected	Federal Candidate, Category 2; Bureau Tracking; State Vulnerable
<i>Bassariscus astutus</i>	Ringtail	Suspected	Bureau Tracking; State Undetermined
<i>Batrachoseps attenuatus</i>	Calif. slender salamander	Suspected	Bureau Assessment, State Sensitive Peripheal
<i>Brachramphus marmoratus</i>	Marbled murrelet	Suspected	Threatened (Federal & State)
<i>Contia tenuis</i>	Sharp-tailed snake	Suspected	Bureau Tracking; State Vulnerable
<i>Coryhinus townsendii</i> <i>townsendii</i>	Townsend's big-eared Bat (Lump-nosed bat)	Suspected	Federal Candidate, Category 2; State Critical
<i>Falco peregrinus anatum</i>	Peregrine falcon	Suspected	Endangered (Federal & State)
<i>Lampropeltis zonata</i>	Calif. mountain kingsnake	Suspected	Bureau Tracking; State Sensitive Peripheal
<i>Martes americana</i>	American Marten	Suspected	Bureau Sensitive, State Critical
<i>Myotis thysanodes</i>	Fringed Myotis	Suspected	Bureau Sensitive, State Vulnerable
<i>Onchorhynchus mykiss</i>	Winter steelhead	Documented	Proposed Threatened
<i>Oreortyx picta</i>	Mountain quail	Documented	Federal Candidate, Category 2
<i>Otus flammeolus</i>	Flammulated owl	Suspected	Bureau Tracking
<i>Phenacomys longicaudus</i>	Red tree vole	Suspected	Record of Decision, Survey & Manage species

Table 3-2. Special Status Animal Species (cont.)

Scientific Species Name	Common Name	Occurrence	Status
<i>Plethodon elongatus</i>	Del Norte salamander	Suspected	Federal Candidate, Category 2; Record of Decision, Survey & Manage Species; State Vulnerable
<i>Plethodon stormi</i>	Siskiyou Mountains salamander	Suspected	Federal Candidate, Category 2; State Vulnerable
<i>Progne subis</i>	Purple martin	Suspected	Bureau Sensitive; State Critical
<i>Rana aurora</i>	Red-legged frog	Documented	Federal Candidate, Category 2; State Undetermined
<i>Rana boylei</i>	Foothills yellow-legged frog	Suspected	Federal Candidate, Category 2; State Sensitive Vulnerable
<i>Rhyacotriton variegatus</i>	Southern torrent salamander	Documented	Federal Candidate, Category 2; Petitioned Threatened; State Vulnerable
<i>Strix occidentalis caurina</i>	Northern spotted owl	Suspected	Threatened (Federal & State)

Red-legged frogs are found west of the Cascade crest, typically in moist coniferous forests, slow-moving streams, and small ponds. This species has been documented within both ACECs in slow-moving streams and ponds.

Southern torrent salamander - This salamander lives in permanent springs and streams under gravel and rocks, preferring a water temperature between 8-12 degrees Celsius. The Southern torrent salamander has been documented in the springs and outlet of Hunter Creek bog.

Fisheries

One designated ACEC value of North Fork Hunter Creek is its important habitat for fisheries. Both the main stem and North Fork of Hunter Creek support resident and sea-run cutthroat trout. Winter steelhead have been observed up the main stem of Hunter Creek, as far as a small drainage near the Forest Service boundary, where they may be blocked by some structure or landform. Fall chinook, and possibly coho, utilize Hunter Creek at least as far as the confluence of Hunter Creek and its North Fork.

Cultural/Historical Resources

Cultural resources are scattered throughout both ACECs. In Hunter Creek Bog ACEC, one prehistoric lithic manufacturing site has been identified. Both pressure and percussion flakes of chert are scattered over a large area along a ridgetop. The abundance of naturally occurring small chert nodules along the ridgetop indicates this area may have been used as a tool manufacturing site. Hunting activities may have been associated with this site, since large mammals would have followed the ridge and fed along the meadow edges.

While over a relatively large area (about 500 feet in diameter), this site is dispersed and appears to be strictly a surface manifestation. There are no diagnostic artifacts present now,

indicating the highly transitory nature of the activities that occurred there. Its location may indicate the presence of a historic trail system between Hunter Creek and Pistol River.

Most ridgetop sites in this region are quite old, relating to an early period of human occupation in southwest Oregon. These lithic manufacturing sites usually were in the vicinity of large base camps, from which small groups of hunters dispersed in search of game. No large base camp has yet been located in the vicinity of this lithic manufacturing site. Relatively little is known about this early culture, lending added significance to preservation of this site.

One prehistoric site, likely a temporary fishing camp, has been documented on a small terrace along Hunter Creek within the North Fork Hunter Creek ACEC.

Among other historical resources recorded in the North Fork ACEC are two cabin locations and portions of a trail system that are maintained by local people.

Recreation

Recreation in Hunter Creek Bog and North Fork Hunter Creek ACECs has been primarily from local groups and individuals who visit the bog. Since access to the bog is somewhat limited (one must know the location of the bog and primitive trails leading into it), most effects of visitor use are confined to the lower bog and pond areas. The bog has well established trails, which is where most trampling of plants is seen. The number of trails within the bog appears to be increasing in recent years.

A major use in Hunter Creek bog is guided walks from groups, such as Audubon and Native Plant Society, which are usually interested in birding or wildflower viewing. Other groups, such as local school classes, have had field trips into the area. Individual uses have primarily come from local residents and professional botanists and biologists who

come to look at the unique resources of the area.

An existing trail in North Fork Hunter Creek ACEC is maintained by local people who mark the trail with wooden signs. While some areas of the trail are visible, the majority of the trail system is not. The trailheads for this trail begin on Forest Service lands. Few people use these trails because the locality and visibility of these signs is relatively unknown, and also because gated roads to the west restrict access.

Hunting may occur within the ACEC, but to what extent is unknown. The majority of any hunting probably occurs adjacent to roads.

There are no signs or directions to either ACEC. No developed camping sites are present, although the trail in the North Fork Hunter Creek ACEC provides opportunities for backpack camping. There is a large area (apparently redeposited road materials) that could be utilized for parking along Hunter Creek Road near the upper portion of Hunter Creek bog.

Minerals

Approximately 102 million tons of nickel lateritic reserves occur in northwest California and southwest Oregon. With the exception of Nickel Mountain near Riddle, Oregon, which contains 25 million tons of reserves, most nickel laterite deposits in this area are small to medium reserves averaging about one million tons of reserves each, totaling approximately 77 million tons (USDI 1985).

Mining claims recorded for the entire Hunter Creek bog area and a small portion of North Fork Hunter Creek ACEC are shown on Fig. 3-1, with the exception of valid mining claims on adjacent Forest Service lands.

Big Basin Nickel holds three claims in the ACECs: Brushy Ridge, Big Springs, and Big Basin Association #1, 2 and 3. For all other

claims, the claimant is Red Flats Nickel (Table 3-3). Some claims date to 1936.

Minerals within the area include nickel and cobalt, which are considered strategic metals for which the United States is largely dependent on foreign sources. According to a 1973 report of the Oregon Department of Geology and Mineral Industries (DOGMI), surface soils at Hunter Creek bog contain approximately 0.5 percent nickel, but gradually enrich to up to 1 percent (McKee 1976). In another study, several samples were taken to determine the area's mineralogy and approximate value. The study concluded that laterites consist primarily of limonite, with lesser amounts of serpentine, altered olivine, manganese oxide and chromite. The finer, more highly leached material, is summarized in Table 3-4.

Current information is considered inadequate to determine thickness, extent, and grade of the lateritic deposits that are based on previous work by the BLM and the DOGMI.

Timber Resources and Special Forest Products

Timber Resources - Under the Coos Bay BLM RMP, which tiers to the Northwest Forest Plan, these ACECs are considered Administratively Withdrawn Areas within a Late-Successional Reserve. Due to these designations, no scheduled timber harvest is available from lands within the ACECs. Because much of the riparian/wetlands are also included in Riparian Reserves, their management must comply with the Aquatic Conservation Strategies.

The forest types are described in the vegetation discussion. Ages of forests within the ACECs range up to approximately 200 years old along North Fork Hunter Creek in Section 1. Much of the ACECs, particularly those areas dominated by Jeffrey and knobcone pine, have been withdrawn under the Timber Productivity Capability Classification (TPCC).

FIGURE 3-1. EXISTING MINING CLAIMS
WITHIN HUNTER CREEK BOG AND NORTH
FORK HUNTER CREEK ACECS

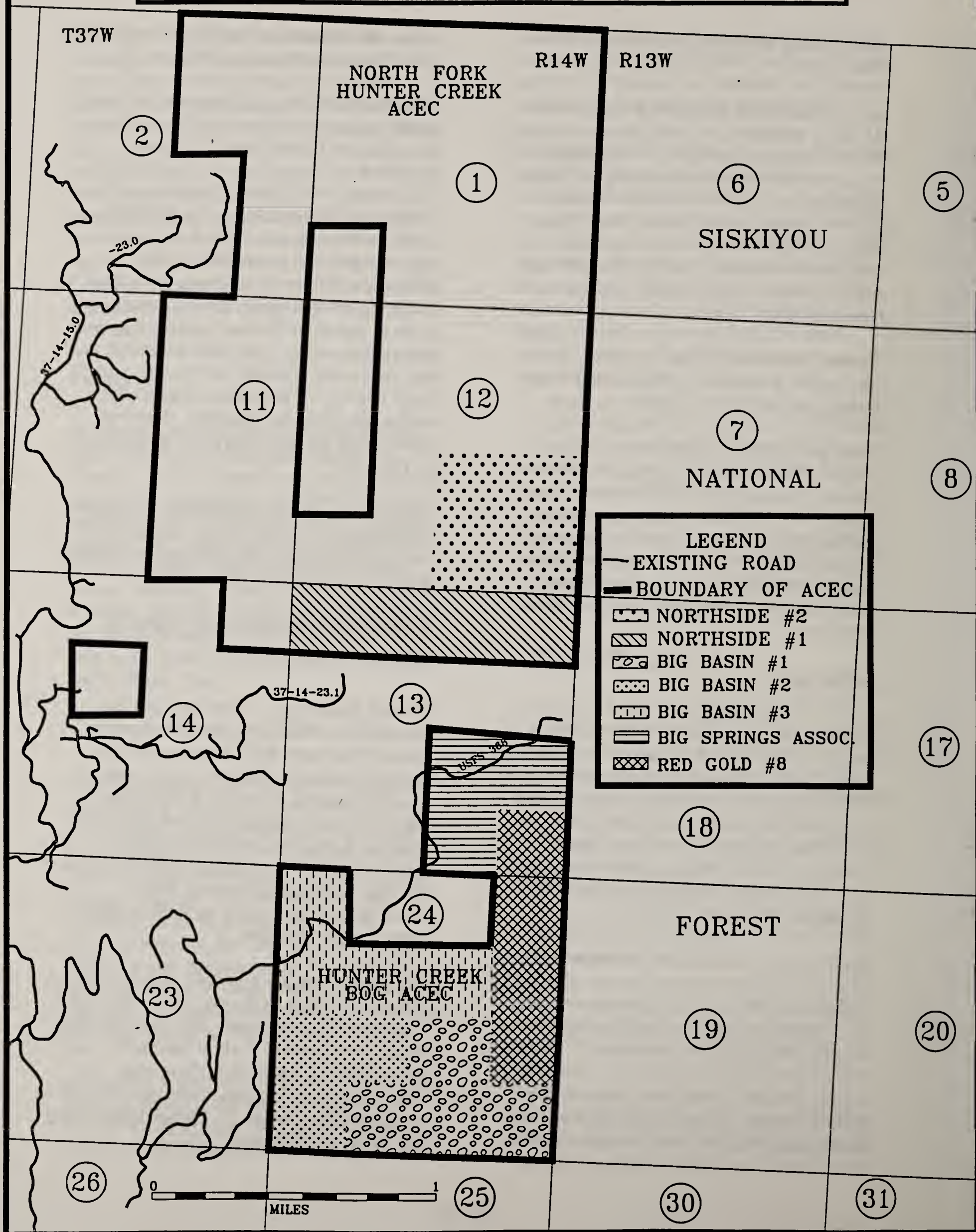


Table 3-3. Mining Claims Within or Adjacent to the Hunter Creek Bog and North Fork Hunter Creek ACECs.

Claim Name	Date Filed	Legal Location (Township/Range/Section)
North Side #3	10-27-64	T. 37 R. 13 Sec. 7
Red Gold #5	07-01-36	T. 37 R. 14 Sec. 18
Red Gold Assoc.#10	03-20-41	T. 37 R. 13 Sec. 18
Garnerite #3	06-25-62	T. 37 R. 13 Sec. 19
Garnerite #4	06-26-62	T. 37 R. 13 Sec. 19
Garnerite #5	06-28-62	T. 37 R. 13 Sec. 19
Red Ridge	05-18-39	T. 37 R. 13 Sec. 19
Red Gold #3	07-01-36	T. 37 R. 13 Sec. 19
Red Gold #4	07-01-36	T. 37 R. 13 Sec. 19
North Side #2	10-27-64	T. 37 R. 14 Sec. 12
Big Springs	01-28-55	T. 37 R. 14 Sec. 13
Red Gold #8	07-01-36	T. 37 R. 14 Secs. 13, 24
North Side #1	10-27-64	T. 37 R. 14 Sec. 13
Big Basin Assoc. # 1, 2, and 3	09-01-64	T. 37 R. 14 Sec. 24
Red Gold #8	07-01-36	T. 37 R. 14 Sec. 24

Table 3-4. Minerals Summary

Mineral	Percent Weight
Nickel Oxide (NiO)	0.97
Cobalt (Co)	0.20
Iron (Fe)	36.10
Chromium (Cr)	1.87
Magnesium Oxide (MgO)	7.22
Manganese (Mn)	0.50
Silicon Oxide (SiO ₂)	21.50
Aluminum Oxide (Al ₂ O ₃)	4.11
Calcium Oxide (CaO)	0.08

Source: Rimal and Ramp 1978

Special Forest Products - There is very little information known about the harvest of special forest products (e.g., beargrass, azaleas, cones, and cedar boughs). Any collection of these and other special forest products appears to be minimal at this time.

Chapter 4 - Environmental Consequences

Introduction

This chapter identifies direct, indirect and cumulative effects of the alternatives. The discussion includes potential impacts common to all alternatives, followed by impacts to resources specific to the alternatives and grouped as follows: Vegetation (Including Special Status Species), Wildlife (Including Special Status Species), Recreation, and Minerals.

Effects Common to All Alternatives

The following critical and non-critical elements of the human environment will not be affected by any of the three alternatives discussed in this draft management plan/EA:

- **Air quality** - None of the alternatives would modify air quality.
- **Farm lands** - No farm lands exist within or adjacent to the ACECs.
- **Native American Religious Concerns** - Neither ACEC is identified as an area having Native American religious concerns.
- **Floodplains** - Neither ACEC occurs within any floodplains.
- **Water Quality** - None of the alternatives would impact water quality. While possible future surface mining activity has potential to impact water quality, the plan of operation would require that the operator protect water quality.
- **Hazardous Materials** - None of the alternatives are expected to involve any hazardous materials within the ACECs. A fuel spill could happen along Hunter Creek road, potentially impacting water quality in

the bog. Currently, along Hunter Creek road, the culverts direct flows toward the bog. Present drainage patterns show that none of the runoff reaches the bog, or at least hasn't in the last few years. Mining activities have the potential of introducing hazardous materials, but these possibilities would be addressed under a Plan of Operation submitted by the mining claimant. The District Hazardous Materials Contingency Plan would be implemented for any hazardous materials located in the ACECs.

- **Fisheries** - Impacts to fisheries are expected to be minimal from actions proposed under any of the three alternatives. Mineral activities in the ACECs have potential to impact fisheries downstream by increasing sediment loads. These impacts would be addressed after the operator submits a Plan of Operation providing site-specific details.
- **Cultural/Historical** - All known cultural/historic sites would be protected under all alternatives per: BLM Manual 8100 (covering management); 3809. 22.A1-4 relative to actions to protect cultural resources when a Plan of Operation has been formally submitted and if cultural resources are located; and the National Historic Preservation Act.

Vegetation Species (Including Special Status)

General: Under all alternatives, impacts on vegetation would primarily be caused by recreation use, and mineral development and extraction. These uses may affect the composition, structure, and diversity of plant communities, and the populations and habitats of special status plant species. Vegetation management, such as prescribed fires, would also impact vegetation by altering habitat or destroying plants.

The general vegetative composition is expected to be unaffected under all alternatives.

Recreation Use, Including Trails: Some vegetative alteration or disturbance would occur under Alternatives B and C with recreational development and trail improvement. However, most trail development would be along existing trails and roads, which would minimize vegetative disturbance. Alternative C has the most trail development, and likewise the most potential for associated vegetative disturbance.

After completion, however, the recreational developments and trail improvements would direct visitors away from sensitive areas (Hunter Creek Bog), and in this manner reduce the potential for impacting vegetation.

Unconstrained use of numerous trails, as in Alternative A, has the potential of trampling sensitive plant communities. Inadvertent trampling of California pitcher-plants by hikers is presently evident along several trails into the bog, and some trails in *Waldo gentian* habitat also have exhibited plant trampling in the past. This potential for impact is even greater when considering the expected visitation increase in the future.

Direct effects from trampling include reduced plant cover and species diversity (Bright 1986, Hall and Kuss 1989). Indirect effects include: changes in species composition (increasing the amount of disturbed areas and consequently increasing the potential invasion of exotic vegetation) (Hall and Kuss 1989); and changes in soil properties, such as soil compaction and soil moisture (Call et al. 1981, Cole 1987).

The following management actions specific to trail development would minimize impacts to vegetation: trail location in less sensitive areas; interpretive signs informing visitors about need for protecting vegetation; and railings to reduce the chance of people straying from the trails.

Unauthorized collection of California pitcher-plant is expected to remain a threat under all alternatives.

The chance of non-native species or noxious weed infestations would be greater under Alternatives A and C, which allow horse use within the ACECs. Horse manure or straw could introduce non-native or noxious plants into areas and lead to alteration of plant species composition.

Minerals: Any mining activity adjacent to unique plant communities and special status plant species may impact these resources by altering the hydrology and water chemistry. Any change of the water table would likely impact California pitcher-plant, as this species requires its roots to be in cool, slow-flowing water (Stansell 1980). A change in hydrology would also impact the bog plant community by changing soil moisture properties.

Surface mining specifically, through soil removal done to extract the nickel ore, may affect the unique soil properties and geology that contribute to the occurrence of special plant communities. Even after mining and soil mitigation, many unique plant communities may never be restored.

Impacts to special status plants from mining activities would be similar under all alternatives. Because none of the special status species are listed under the ESA, they are afforded little protection under BLM Manual 3809. Since special status species are a designated ACEC value, however, the Plan of Operation would include site-specific measures to provide some protection.

Mineral withdrawal of lands without current claims under Alternatives B and C would protect the vegetation on these lands from future mineral activities, while ACEC lands under Alternative A would continue to be open for future mineral claims.

Vegetative Management, Including Prescribed Fire: Vegetated areas affected by prescribed fire would initially be small scale, probably within the bog and in the meadows in North Fork Hunter Creek ACEC. Where used to restore an ecosystem function, fire would curb

encroachment of woody vegetation to help maintain unique habitats of the area.

If woody vegetation in Hunter Creek bog is not controlled, it may cause increased evapotranspiration, which would eventually change the bog's hydrology and consequently its vegetative composition.

Special Forest Products: Impacts to Port-Orford-cedar are expected to be minimal under all alternatives, as no bough cutting would be permitted within the ACECs. There is always the likelihood that vehicle traffic on Hunter Creek road may infect uninfected stands with Port-Orford-cedar root rot.

Impacts to other special forest products would be the least under Alternative B, which does not allow harvest of any product. The greatest impacts are anticipated under Alternative A, which allows both personal and commercial harvest of specific forest products. Impacts would be somewhat less under Alternative C, which allows harvest only for personal use and requires a permit, providing opportunity for BLM to monitor the amount of collection within the ACECs.

Wildlife (Including Special Status)

General: Impacts to wildlife are largely dependent upon the impacts to vegetation and level of disturbances, which determine the area's habitat components and usefulness. Reductions in favorable habitat eventually would cause species dependent on that habitat to leave the area.

Overall, little change in impacts to wildlife species is expected under all alternatives. The greatest impact would be from recreation use and potential mining.

Recreation Use: Recreation use creates disturbance, which may alter life history activities such as nesting and feeding. Impacts to wildlife from recreational use would be greatest under Alternative A, as visitor use would be unmanaged. Visitors would have

more unconstrained access into the ACECs, increasing the likelihood of disturbance to certain species of wildlife and their habitats. This disturbance would likely be located near the bog area, which is close to the road and also the major attraction of the ACECs. Under Alternative B, the recreation development would be concentrated adjacent to the bog.

Mining Activity: Mining activities impact wildlife by altering or destroying plant communities that comprise wildlife habitat, changing hydrologic/water chemistry, causing disturbance, and reducing useable habitat for breeding, rearing, and hiding.

Many wildlife species in the ACEC depend on unique plant communities (pine forests, oak savanna, riparian areas) in the ACECs. While mining operations would reclaim impacted areas, the habitats that were present prior to the mining activity may not be reclaimed. Any changed habitat would result in a different wildlife species composition.

Another potential impact of mining activities is an increase in the amount of sediments released into the streams. Mining could also change the water table, as well as the water's chemistry and temperature. The increased sedimentation and any hydrologic fluctuations could adversely affect certain aquatic amphibians, including special status species. If extirpated from the area, some species may not recolonize for years, if ever, given their limited mobility (Blaustein et. al. 1994).

Vegetation Management Including Prescribed Fire: Using prescribed fires may enhance early successional wildlife habitat. Fires are likely to improve herbaceous plant vigor and likewise the forage for deer and elk. Any disturbance to nesting activities of wildlife is expected to be minimal because prescribed fires and other activities, such as trail construction, will be designed and scheduled to minimize such disturbances.

Threatened/Endangered Species: No effects to species listed as Threatened or Endangered are expected under any alternatives because:

- No suitable habitat for northern spotted owl or marbled murrelet will be affected by the proposed activities.
- No nesting habitat for peregrine falcon exists either within the ACECs, or within a radius of one mile of the ACECs. Foraging habitat, however, exists within the ACEC that could be used by peregrine falcons nesting within a few miles or wintering in the area. While peregrine falcons may use the area occasionally in winter, no peregrine falcons are known to be nesting in the area.
- No suitable nesting habitat for northern spotted owls or marbled murrelet exists within 0.25 mile of proposed activities.
- Activities potentially disturbing to nesting northern spotted owl or marbled murrelet (e.g., trail construction, parking lot modification, and prescribed burning) will not occur within 0.25 mile of potential nesting habitat for northern spotted owl or marbled murrelet.
- Trail maintenance (hand trails) and trail use are expected to involve noises at or below noise levels that would affect nesting spotted owls or marbled murrelets.

Recreation

Recreation and Trail Use: Recreation use will likely increase under all alternatives. The primary difference is that, Alternatives B and C, by having some recreational development and trail improvement, encourage visitors to remain on designated trails. Also, the trails would be located in areas that would not impact sensitive plant communities and special status plants.

While current uses (such as hiking and plant/wildlife observation) will continue to be

allowed under all alternatives, Alternatives B and C provide a more managed situation with fewer impacts to ACEC values.

Signing: Sign placement along Hunter Creek road, as proposed under Alternatives B and C, may attract more visitors to the ACEC. Traffic on Hunter Creek road is not expected to dramatically increase in the future, as much of the current traffic is work-related (logging, Forest Service) and would not be expected to stop at Hunter Creek bog.

Camping: Alternative C would increase opportunities for backpack-type camping by providing more trails in the North Fork Hunter Creek ACEC and improving access with a trailhead along Hunter Creek road.

Other Activities: Alternative C would also support more recreational activities, including horseback riding, mountain biking, and picnicking.

Minerals

General, Including Plan of Operation: Prior to ACEC designation, proposed mineral activities did not require a Plan of Operation on activities less than five acres (BLM Manual 3809.14). Under all alternatives, all mining would be subject to a detailed Plan of Operation (except for casual use) prior to any surface-disturbing activities (BLM Manual 3809.14A). Additional planning, stipulations, and approval requirements identified in the Plan of Operation would help identify site-specific needs to protect the area's integrity and ACEC values.

Plan approval would be delayed pending district review. The delay and extra stipulations may result in additional costs in developing and processing mineral resources, which could lead to avoidance or discontinuance of mineral exploration and extraction. Dependence on less expensive foreign sources of such minerals could be continued.

Mineral Withdrawal: Approximately 42 million tons (54 percent) of the area's total nickel laterite reserves have either been or are currently being considered for mineral withdrawal or other restrictive designations.

These include: North Fork Smith River Roadless Area, Kalmiopsis Wilderness, Eight Dollar Mountain ACEC, and USDA Forest Service Roadless and Special Botanical Areas.

The cumulative effects of withdrawals and more restrictive designations would impact the availability of nickel resources in the future. Removal of substantial portions of this resource from availability could have long-term detrimental effects in the development of this unique resource.

The more restrictive measures would also have possible economic impacts, including potential loss of local revenues, services and job opportunities.

Under Alternatives B and C, the withdrawal of ACEC lands without existing claims would result in these lands being unavailable for future mineral activity. This action is assumed to have minimal impacts, since some claims have been present for over 50 years and would have most likely been filed by now if valuable minerals were present.

Chapter 5 - List of Preparers and Literature Cited

Preparers

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Appendix A - Plant Species List for Hunter Creek Bog and North Fork Hunter Creek ACECs.
(Note: Special status species are noted by an asterisk after the scientific name.)

FERNS AND THEIR ALLIES

<u>Scientific Name</u>	<u>Common Name</u>
BLECHNACEAE (DEER FERN FAMILY)	
<i>Blechnum spicant</i> (L) Smith	deer fern
<i>Woodwardia fimbriata</i> Smith	giant chain fern
DENNSTAEDTIACEAE (BRACKEN FAMILY)	
<i>Pteridium aquilinum</i> (L) Kuhn var. <i>pubescens</i>	bracken
DRYOPTERIDACEAE (WOOD FERN FAMILY)	
<i>Athyrium filix-femina</i> (L) Roth var. <i>cyclosorum</i> Rupr.	lady fern
<i>Polystichum imbricans</i> (D. Eaton) D.H. Wagner ssp. <i>imbricans</i>	imbricate sword fern
<i>Polystichum munitum</i> (Kaulf.) C. Presl.	western sword fern
EQUISETACEAE (HORSETAIL FAMILY)	
<i>Equisetum arvense</i> L.	common horsetail
<i>Equisetum telmateia</i> Ehrh. ssp. <i>braunii</i> (Milde) R.L. Hauke	giant horsetail
POLYPODIACEAE (POLYPODY FAMILY)	
<i>Polypodium glycyrrhiza</i> D. Eaton	licorice-fern
PTERIDEACEAE (BRAKE FAMILY)	
<i>Adiantum aleuticum</i> (Rupr.) C.A. Paris	five-finger fern
<i>Aspidotis densa</i> (Brackenr.) Liellinger	Indian's dream
<i>Cheilanthes gracillima</i> D. Eaton.	lace fern
<i>Pentagramma triangularis</i> (Kaulf.) G. Yat., Windham	gold back
SELAGINELLACEAE (SPIKE-MOSS FAMILY)	
<i>Selaginella wallacei</i> Hieron	Wallace's spike-moss

GYMNOSPERMS

CUPRESSACEAE (CYPRESS FAMILY)	
<i>Chamaecyparicus lawsoniana</i> A. Murr.	Port-Orford-cedar
<i>Juniperus communis</i> L. ssp. <i>montanus</i>	common juniper
PINACEAE (PINE FAMILY)	
<i>Pinus attenuata</i> Lemmon	Knobcone pine
<i>Pinus contorta</i> Loudon var. <i>murrayana</i> (Grey & Balf.) Critchf.	Lodgepole pine
<i>Pinus jeffreyi</i> Grev. & Balf.	Jeffrey pine
<i>Pinus lambertiana</i> Doug.	sugar pine
<i>Pinus monticola</i> Doug.	western white pine
<i>Pseudotsuga menziesii</i> (Mirbel.)	
var. <i>menziesii</i>	Douglas-fir

Appendix A. Plant Species (cont.)

<u>Scientific Name</u>	<u>Common Name</u>
<i>Tsuga heterophylla</i> (Raf.) Sarg.	western hemlock
TAXACEAE (YEW FAMILY)	
<i>Taxus brevifolia</i> Nutt.	Pacific yew
DICOTYLEDONS	
ACERACEAE (MAPLE FAMILY)	
<i>Acer circinatum</i> Pursh	vine maple
<i>Acer macrophyllum</i> Pursh	big-leaf maple
ANACARDIACEAE (SUMAC FAMILY)	
<i>Toxicodendron diversilobium</i> (Torrey & A.Gray) E. Greene	western poison-oak
APIACEAE (CARROT FAMILY)	
<i>Angelica arguta</i> Nutt.	angelica
<i>Heracleum lanatum</i> Michx.	cow-parsnip
<i>Ligusticum apiifolium</i> (Nutt.) A. Gray	licorice-root
<i>Lomatium ciliolatum</i> Jepson var. <i>hooveri</i> Mathias & Constance	Hoover's lomatium
<i>Lomatium hallii</i> (S. Watson) Coult. & Rose	Hall's lomatium
<i>Lomatium howellii</i> (S. Wats.) Jepson	Howell's lomatium
<i>Lomatium macrocarpon</i> (Torrey & A.Gray) Coult. & Rose	
<i>Lomatium martindalei</i> (Coult. & Rose) Coult. & Rose	large fruited lomatium
<i>Lomatium triternatum</i> (Pursh) Coult. & Rose var. <i>triternatum</i>	coast range lomatium
<i>Lomatium utriculatum</i> (Torr. & A.Gray) Coult. & Rose	nine leaf lomatium
<i>Oenanthe sarmentosa</i> J.S. Presl.	common lomatium
<i>Osmorhiza chilense</i> Hook. & Arn.	oenanthe
<i>Perideridia oregana</i> (S. Wats.) Mathias	sweet cicely
<i>Sanicula bipinnatifida</i> Hook.	Oregon yampah
<i>Sanicula crassicaulis</i> DC.	purple sanicle
<i>Sanicula laciniata</i> Hook. & Arn.	thick stemmed sanicle
	lacinate sanicle
APOCYNACEAE (DOGBANE FAMILY)	
<i>Apocynum androsaemifolium</i> L.	bitter dogbane
ARALIACEAE (GINSENG FAMILY)	
<i>Aralia californica</i> S. Wats.	elk clover
ARISTOLOCHIACEAE (PIPEVINE FAMILY)	
<i>Asarum caudatum</i> Lindl.	wild-ginger
ASTERACEAE (SUNFLOWER FAMILY)	
<i>Achillea millifolium</i> L.	yarrow

Appendix A. Plant Species (cont.)

Scientific NameCommon Name

<i>Adenocaulon bicolor</i> Hook.	trail plant
<i>Anaphalis margaritacea</i> (L.) Benth. & Hook.	pearly everlasting
<i>Antennaria suffrutescens</i> E. Greene	evergreen everlasting
<i>Arnica cernua</i> Howell	serpentine arnica
<i>Baccharis pilularis</i> DC.	chaparral broom
<i>Bellis perennis</i> L.	English daisy
<i>Chrysothamnus nauseosus</i> (Pallas)	
Britt. ssp. <i>albicaulis</i> (Nutt.) Hall and Clements	white rabbitbrush
<i>Cirsium remotifolium</i> (Hook) DC.	thistle
<i>Crepis pleurocarpa</i> A. Gray	Hawksbeard
<i>Crocidium multicaule</i> Hook.	spring-gold
<i>Erigeron eatonii</i> A. Gray var. <i>plantagineus</i> (E. Greene) Cronq.	Eaton's fleabane
<i>Erigeron foliosus</i> Nutt. var. <i>confinus</i> (Howell) Jepson	leafy erigeron
<i>Eriophyllum lanatum</i> (Pursh.) Forbes	woolly sunflower
<i>Grindelia nana</i> Nutt.	small gumweed
<i>Hieracium albiflorum</i> Hook.	white-flower hawkweed
<i>Hieracium bolanderi</i> A. Gray*	Bolander's hawkweed
<i>Hieracium parryi</i> Zahn	Parry's hawkweed
<i>Hypochaeris radicata</i> L.	rough cat's-ear
<i>Lactuca saligna</i> L.	small lettuce
<i>Leucanthemum maximum</i> (Ramond) DC.	oxe-eye daisy
<i>Luina hypoleuca</i> Benth.	luina
<i>Madia madiodes</i> (Nutt.) E. Greene	tarweed
<i>Micropus californicus</i> Fisc. & E. Meyr.	slender cottonweed
<i>Microseris laciniata</i> (Hook.) Schultz-Bip. ssp. <i>leptosepala</i> (Nutt.) Chambers	microseris
<i>Petasites frigidus</i> (L.) Fries. var. <i>palmatius</i> (Aiton) Cronq.	coltsfoot
<i>Rudbeckia californica</i> A. Gray var. <i>glauca</i> S.F. Blake	California coneflower
<i>Senecio bolanderi</i> A. Gray var. <i>bolanderi</i>	Bolander's groundsel
<i>Senecio canus</i> Hook.	woolly senecio
<i>Senecio triangularis</i> Hook.	arrowleaf senecio
<i>Taraxacum officinale</i> Wigg.	dandelion

BERBERIDACEAE (BARBERRY FAMILY)

<i>Achlys triphylla</i> (Smith) DC. ssp. <i>triphylla</i>	vanilla leaf
<i>Berberis aquifolium</i> Pursh var. <i>repens</i> (Lindl.) H. Scoggin	

<i>Berberis nervosa</i> Pursh	creeping Oregon-grape
<i>Vancouveria hexandra</i> (Hook.) Morren & Decne	low Oregon-grape
<i>Vancouveria planipetala</i> Calloni	inside out flower
	redwood ivy

BETULACEAE (BIRCH FAMILY)

<i>Alnus rubra</i> Bong.	red alder
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BORAGINACEAE (BORAGE FAMILY)

<i>Cynoglossum grande</i> Lehm.	large hounds-tongue
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Appendix A. Plant Species (cont.)

Scientific NameCommon Name*Myosotis discolor* Pers.

forget-me-not

BRASSICACEAE (MUSTARD FAMILY)

Cardamine sp.

bittercress

Streptanthus tortuosus Kellogg

mountain jewelflower

CAMPANULACEAE (HAREBELL FAMILY)

Campanula prenanthoides Durand

harebell

CAPRIFOLIACEAE (HONEYSUCKLE FAMILY)

Linnaea borealis L. var. *longiflora* Torrey

twin flower

Lonicera ciliosa (Pursh) Poiret

orange honeysuckle

Symphoricarpos albus (L.) SF Blake var. *laevigatus* (Fern) SF Blake

snowberry

CARYOPHYLLACEAE (PINK FAMILY)

Arenaria macrophylla Hook.

bigleaf sandwort

Cerastium arvense L.

field chickweed

Silene campanulata S. Wats. var. *glandulosa* Hitchc. & Mag.

campanulate catchfly

Silene gallica L.

windmill pink

CONVOLVULACEAE (MORNING-GLORY FAMILY)

Calystegia atriplicifolia Hallier

morning glory

CRASSULACEAE (STONECROP FAMILY)

Sedum laxum (Britt.) A. Berger ssp. *laxum*

lax stonecrop

Sedum spathulifolium Hook.

spatulate leaved stonecrop

CUCURBITACEAE (GOURD FAMILY)

Marah oreganus (Torr. & A. Gray) Howell

coast manroot

DROSERACEAE (SUNDEW FAMILY)

Drosera rotundifolia L.

round leaved sundew

ERICACEAE (HEATH FAMILY)

Allotropa virgata A. Gray

sugar stick

Arbutus menziesii Pursh

Pacific madrone

Arctostaphylos columbiana Piper

hairy manzanita

Arctostaphylos hispidula Howell*

Howell's manzanita

Arctostaphylos uva-ursi (L.) Sprengel

bearberry

Chimaphila menziesii (D. Don.) Sprengel

little prince's-pine

Gaultheria shallon Pursh

salal

Ledum glandulosum Nutt.

Laborador-tea

Monotropa hypopitys L.

pinesap

Monotropa uniflora L.

Indian pipe

Pleuricospora fimbriolata A. Gray

fringed pinesap

Appendix A. Plant Species (cont.)

<u>Scientific Name</u>	<u>Common Name</u>
<i>Pyrola aphylla</i>	leafless wintergreen
<i>Pyrola picta</i> Smith	white veined wintergreen
<i>Rhododendron macrophyllum</i> D. Don	California rose-bay
<i>Rhododendron occidentale</i> (Torrey & A. Gray) A. Gray	western azalea
<i>Vaccinium ovatum</i> Pursh	evergreen huckleberry
<i>Vaccinium parvifolium</i> Smith	red huckleberry
FABACEAE (LEGUME FAMILY)	
<i>Lathyrus delnorticus</i> C. Hitchc.	Del Norte pea
<i>Lathyrus nevadensis</i> S. Wats. var. <i>nevadensis</i>	Sierran pea
<i>Lotus formosissimus</i> E. Greene	seaside lotus
<i>Lupinus bicolor</i> Lindl.	miniature lupine
<i>Lupinus</i> sp.	lupine
<i>Pedimelum californicum</i> (S. Watson) Rydb.	Indian breadroot
<i>Thermopsis macrophylla</i> Hook. & Arn. var. <i>venosa</i> (Eastw.) Isely	golden pea
<i>Trifolium albopurpureum</i> Torr. & A. Gray var. <i>dichotomum</i> (Hook. & Arn.) Isely	Indian clover
<i>Trifolium longipes</i> Nutt.	clover
<i>Trifolium subterraneum</i> L.	subterranean clover
<i>Vicea americana</i> Willd. var. <i>americana</i>	American vetch
FAGACEAE (OAK FAMILY)	
<i>Chrysolepis chrysophylla</i> (Hook.) Hjelmq.	chinquapin
<i>Lithocarpus densiflorus</i> (Hook. & Arn.) Rehder	tan oak
<i>Quercus chrysolepis</i> Liebm.	canyon live oak
<i>Quercus garryana</i> Hook.	Oregon white oak
<i>Quercus sadleriana</i> R.Br. Campst.	deer oak
<i>Quercus vaccinifolia</i> Kellogg	huckleberry oak
GARRYACEAE (SILK TASSEL FAMILY)	
<i>Garrya fremontii</i> Torrey	Fremont's silk tassel
GENTIANACEAE (GENTIAN FAMILY)	
<i>Gentiana affinis</i> Griseb. var. <i>ovata</i>	Oregon gentian
<i>Gentiana setigera</i> A. Gray*	Waldo gentian
GROSSULARIACEAE (GOOSEBERRY FAMILY)	
<i>Ribes menziesii</i> Pursh	canyon gooseberry
<i>Ribes roezlii</i> Regel var. <i>cruentum</i> (E. Greene) Rehder	Sierra gooseberry
<i>Ribes sanguineum</i> Pursh	red flowering currant
HYDROPHYLLACEAE (WATERLEAF FAMILY)	
<i>Eriodictyon californicum</i> (Hook. & Arn.) Torrey	yerba santa
<i>Nemophila parviflora</i> Benth.	few flowered nemophila
<i>Phacelia bolanderi</i> A. Gray	Bolander's phacelia
<i>Phacelia corymbosa</i> Jepson	corymb phacelia

Appendix A. Plant Species (cont.)

Scientific NameCommon Name

LAMIACEAE (MINT FAMILY)

Prunella vulgaris L.

self-heal

Satureja douglasii (Benth.) Briq.

yerba buena

LAURACEAE (LAUREL FAMILY)

Umbellularia californica (Hook. & Arn.) Nutt.

Oregon myrtle

LINACEAE (FLAX FAMILY)

Linum bienne Miller

flax

MALVACEAE (MALLOW FAMILY)

Sidalcea malvaeflora (DC.) Benth. ssp. *patula* C.Hitchc.*

spreading checker mallow

MYRICACEAE (WAX MYRTLE FAMILY)

Myrica californica Cham. & Schldl.

wax myrtle

OLEACEAE (OLIVE FAMILY)

Fraxinus latifolia Benth.

Oregon ash

ONAGRACEAE (EVENING PRIMROSE FAMILY)

Epilobium brachycarpum C. Presl.

thick fruited epilobium

Epilobium minutum Lehm.

small willow herb

OROBANCHEACEAE (BROOM-RAPE FAMILY)

Boschniakia strobilacea A. Gray

California ground-cone

Orobanche uniflora L. var. *purpurea* (A.A. Heller) D.B. Achey

naked broom-rape

OXALIDACEAE (OXALIS FAMILY)

Oxalis oregana Nutt.

Oregon sorrel

Oxalis suksdorfii Trel.

yellow sorrel

PAPAVERACEAE (POPPY FAMILY)

Dicentra formosa (Haw.) Walp.

bleeding heart

PHILADELPHACEAE (MOCK ORANGE FAMILY)

Whipplea modesta Torrey

yerba de selva

PLANTAGINACEAE (PLANTAIN FAMILY)

Plantago lanceolata L.

english plantain

POLEMONIACEAE (PHLOX FAMILY)

Collomia heterophylla Hook.

varied leaf collomia

Gilia capitata Sims.

ballhead gilia

Linanthus bicolor (Nutt.) E. Greene

two colored linanthus

Phlox diffusa Benth.

diffuse phlox

Appendix A. Plant Species (cont.)

Scientific NameCommon Name*Phlox gracilis* E. Greene

annual phlox

POLYGALACEAE (MILKWORT FAMILY)

Polygala californica Nutt.

California milkwort

POLYGONACEAE (BUCKWHEAT FAMILY)

Eriogonum sp.

buckwheat

Rumex acetosella L.

sheep sorrel

PORTULACACEAE (PURSLANE FAMILY)

Claytonia sibirica L.

candy flower

Montia parvifolia (DC.) E. Greene

small leaved montia

PRIMULACEAE (PRIMROSE FAMILY)

Dodecatheon hendersonii A. Gray

mosquito bills

Trientalis latifolia Hook.

starflower

RANUNCULACEAE (BUTTERCUP FAMILY)

Anemone oregana A. Gray

Oregon anemone

Aquilegia formosa Fischer

columbine

Coptis laciniata A. Gray

goldthread

Ranunculus aquatilis L. var. *hispidulus* E. Drew

water buttercup

Ranunculus californicus Benth.

California buttercup

Ranunculus occidentalis Nutt.

western buttercup

RHAMNACEAE (BUCKTHORN FAMILY)

Ceanothus pumilus E. Greene

Siskiyou mat

Ceanothus thyrsiflorus Eschsch.

blue blossom

Rhamnus californica Eschsch. var. *occidentalis*

(J. How.) C. Wolf

Cal. coffeeberry

Rhamnus purshiana DC.

cascara

ROSACEAE (ROSE FAMILY)

Amelanchier alnifolia (Nutt.) Nutt. var. *semiintegrifolia*

(Hook.) C. Hitch.

service-berry

Aphanes occidentalis (Nutt.) Rydb.

lady's mantle

Fragaria vesca L.

wood strawberry

Holodiscus discolor (Pursh) Maxim.

oceanspray

Horkelia sericata W. Wats.

Howell's horkelia

Physocarpus capitatus (Pursh) Kuntze

ninebark

Rosa gymnocarpa Nutt.

wood rose

Rubus leucodermis Torrey & A. Gray

blackcap raspberry

Rubus parviflorus Nutt.

thimbleberry

Rubus spectabilis Pursh

salmonberry

Rubus ursinus Cham & Schldl.

California blackberry

Appendix A. Plant Species (cont.)

Scientific NameCommon Name

Sanguisorba officinalis L. ssp. *microcephala*
(Presl.) Cald. & R. Tay
Spiraea douglasii Hook.

great burnet
spiraea

RUBIACEAE (MADDER FAMILY)

Galium ambiguum Wight ssp. *siskiyouense* Ferris
Galium aparine L.
Galium triflorum Michx.
Sherardia arvensis L.

Siskiyou bedstraw
goose grass
sweet scented bedstraw
field madder

SALICACEAE (WILLOW FAMILY)

Salix spp.

willows

SARRACENIACEAE (FITCHER-PLANT FAMILY)

Darlingtonia californica Torrey*

California pitcher plant

SAXIFRAGACEAE (SAXIFRAGE FAMILY)

Boykinia occidentalis Torrey & A. Gray
Chrysosplenium glechomifolium Nutt.
Mitella sp.
Parnassia californica (A. Gray) E. Greene
Saxifraga howellii E. Greene
Tolmiea menziesii (Pursh) Torrey & A. Gray

western boykinia
golden saxifrage
mitrewort
grass-of-parnassus
Howell's saxifrage
pig-a-back plant

SCROPHULARIACEAE (FIGWORT FAMILY)

Castilleja affinis Hook. & Arn.
Castilleja pruinosa Fern.
Collinsia grandiflora Lindley
Collinsia greenei A. Gray
Collinsia rattanii A. Gray
Digitalis purpurea L.
Mimulus guttatus DC.
Mimulus moschatus Lindley
Penstemon anguineus Eastw.
Synthyris reniformis (Dougl.) Benth.
Triphysaria pusilla (Benth.) Chuang & Heckard

paintbrush
frosted paintbrush
large flrd blue eyed mary
Greene's blue eyed mary
Rattan's blue eyed mary
foxglove
yellow monkeyflower
musk monkeyflower
beardstongue
snow queen
small paintbrush

VALERIANACEAE (VALERIAN FAMILY)

Plectritis ciliata (E. Greene) Jepson ssp. *ciliata*

ciliate plectritis

VIOLACEAE (VIOLET FAMILY)

Viola adunca Smith
Viola cuneata S.Wats.
Viola glabella Nutt.
Viola sempervirens E. Greene

wood violet
wedgeleaf violet
stream violet
redwoods violet

Appendix A. Plant Species (cont.)

Scientific NameCommon Name

VISCACEAE (MISTLETOE FAMILY)

Arceuthobium monticola Hawksw., Wiens, & D. Nickrent
Arceuthobium siskiyouense Hawksw., Wiens, & D. Nickrent

dwarf mistletoe
 knobcone pine dwarf mistletoe

MONOCOTS

CYPERACEAE (SEDGE FAMILY)

Carex concinnoides MacKenzie
Carex mendocinensis Olney
Carex obnupta L. Bailey
Carex rossii Boott.
Carex sp.
Carex tumilicola Mackenzie
Eriophorum criniger (A. Gray) Beetle
Scirpus sp.

sedge
 Mendocino sedge
 slough sedge
 Ross's sedge
 sedge
 foothill sedge
 cotton-grass
 bulrush

IRIDACEAE (IRIS FAMILY)

Iris bracteata S. Wats.
Iris innominata L. Henderson
Iris tenax Douglas
Sisyrinchium bellum S. Wats.
Sisyrinchium californicum (Ker Gawler) Dryander

Siskiyou iris
 Del Norte County iris
 purple iris
 blue-eyed grass
 golden-eyed grass

JUNCACEAE (RUSH FAMILY)

Juncus effusus L.
Juncus oxymeris Engelm.
Juncus spp.
Luzula comosa E. Meyer

common rush
 meadow rush
 rush
 sweep's brush

LILIACEAE (LILY FAMILY)

Allium amplexans Torrey
Allium bolanderi S. Wats. var. *bolanderi**
Allium siskiyouense Traub.
Allium validum S. Wats.
Calochortus tolmiei Hook. & Arn.
Camassia quamash (Pursh) E. Greene ssp. *quamash*
Dichelostemma congestum (Smith) Kunth.
Disporum hookeri (Torrey) Nicholson
Disporum smithii (Hook.) Piper
Erythronium oregonum Appleg.
Fritillaria affinis (Schultes) Sealy
Hastingsia alba (Durand) S. Watson
Lilium columbianum Baker
Lilium pardalinum Kellogg ssp. *vollmeri* (Eastw.) M. Skinner
Nartheceum californicum Baker
Smilacina racemosa (L.) Link

slim leaf onion
 Bolander's onion
 Siskiyou onion
 swamp onion
 pussy ears
 camas
 ookow
 Hooker's fairy bells
 Smith's fairy bells
 Oregon fawn lily
 checker lily
 white flowering rush lily
 tiger lily
 Vollmer's lily
 bog asphodel
 false soloman's seal

Appendix A. Plant Species (cont.)

Scientific NameCommon Name

Smilacina stellata (L.) Desf.
Tofieldia occidentalis S. Wats. ssp. *occidentalis*
Trillium angustipetalum (Torr.) Freeman*
Trillium ovatum Pursh
Trillium rivale S. Watson
Tritelia bridgesii (S. Watson) E. Greene
Triteleia hyacinthina (Lindl.) E. Greene
Xerophyllum tenax (Pursh) Nutt.
Zigadenus micranthus Eastw. var. *micranthus*

small soloman's seal
 tofieldia
 giant purple trillium
 western trillium
 brook wake robin
 Bridge's triteliea
 white brodiaea
 beargrass
 death camas

ORCHIDACEAE (ORCHID FAMILY)

Calypso bulbosa (L.) Oakes
Corallorhiza maculata Raf.
Corallorhiza mertensiana Bong.
Cypripedium californicum A. Gray*
Goodyera oblongifolia Raf.
Listera cordata (L.) R.Br.
Piperia unalascensis (Sprengel) Rydb.
Platanthera sparsiflora (S. Watson) Schltr.

fairy slipper
 spotted coralroot
 western coralroot
 California lady's-slipper
 rattlesnake plantain
 heartleaved twayblade
 Alaska rein-orchid
 bog-orchid

POACEAE (GRASS FAMILY)

Achnatherum lemmonii (Vasey) Barkworth
Aira caryophyllea L.
Bromus sp.
Calamagrostis nutkaensis (C. Presl.) Steudel
Cynosurus echinatus L.
Dactylis glomerata L.
Danthonia californica Bolander
Deschampsia cespitosa (L.) Beauv.
Festuca californica Vasey
Festuca rubra L.
Hierochloe occidentalis Buckley
Koeleria macrantha (Ledeb) J.A. Shultes
Melica harfordii Bolander
Melica spectabilis Scribner
Melica subulata (Gris.) Scribner
Poa piperi A. Hitchc.*
Poa spp.

Lemmon's needlegrass
 silver European hairgrass
 brome
 reed grass
 hedgehog dogtail
 orchard grass
 California oat grass
 tufted hair grass
 California fescue
 red fescue
 sweet grass
 junegrass
 Hoarford's melic grass
 purple onion grass
 melic grass
 Piper's bluegrass
 bluegrass

POTAMOGETONACEAE (PONDWEED FAMILY)

Potamogeton sp.

pondweed

TYPHACEAE (CATTAIL FAMILY)

Typha latifolia L.

broad-leaved cattail

* = Special Status Species (See Table 3-1)

Appendix B - List of Wildlife Species Documented, or Having Potential Habitat, at Hunter Creek Bog and North Fork Hunter Creek ACECs. (Note: Special Status Species are noted by an asterisk after their common name.)

Common Name

Scientific Name

Amphibians

California slender salamander*
 Pacific giant salamander
 Olympic salamander
 Long-toed salamander
 Rough-skinned newt
 Ensatina
 Dunn's salamander
 Del Norte salamander*
 Siskiyou Mountain salamander*
 Clouded salamander*
 Southern Torrent salamander*
 Tailed frog*
 Western toad
 Pacific treefrog
 Red-legged frog*
 Foothills yellow-legged frog*

Batrachoseps attenuatus
Dicamptodon ensatus
Rhyacotriton olympicus
Ambystoma macrodactylum
Taricha granulosa
Ensatina eschscholtzi
Plethodon dunni
Plethodon elongatus
Plethodon stormi
Aneides ferreus
Rhyacotriton variagatus
Ascaphus truei
Bufo boreas
Hyla regilla
Rana aurora
Rana boylei

Reptiles

Western fence lizard
 Sagebrush lizard
 Western skink
 Southern alligator lizard
 Northern alligator lizard
 Rubber boa
 Ringneck snake
 Racer
 Gopher snake
 Common king snake
 California Mtn. king snake
 Garter snake

Sceloporus occidentalis
Sceloporus graciosus
Eumeces skiltonianus
Eligaria multicarinata
Elgaria coerulea
Charina bottae
Diadophis punctatus
Coluber constrictor
Pituophis melanoleucus
Lampropeltis getulus
Lampropeltis zonata
Thamnophis sp.

Birds

Turkey Vulture
 Sharp-shinned Hawk
 Cooper's Hawk
 Red-tailed Hawk
 Blue Grouse
 Ruffed Grouse
 Mountain Quail*
 Marbled Murrelet*
 Band-tailed Pigeon
 Flammulated Owl*

Cathartes aura
Accipiter striatus
Accipiter cooperii
Buteo jamaicensis
Dendragapus obscurus
Bonasa umbellus
Oreortyx pictus
Brachyramphus marmoratus
Columba fasciata
Otus flammeolus

Appendix B. Wildlife Species (cont.)

Common NameScientific Name

Birds (cont.)

Great Horned Owl	<i>Bubo virginianus</i>
Pygmy Owl	<i>Glaucidium gnoma</i>
Northern Spotted Owl*	<i>Strix occidentalis</i>
Common Nighthawk	<i>Chordeiles minor</i>
Vaux's Swift	<i>Chaetura vauxi</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern (Common) Flicker	<i>Colaptes auratus</i>
Olive-sided Flycatcher	<i>Contopus borealis</i>
Western Wood-peewee	<i>Contopus sordidulus</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Dusky Flycatcher	<i>Empidonax oberholseri</i>
Pacific-slope (Western) Flycatcher	<i>Empidonax difficilis</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Purple Martin*	<i>Progne subis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
Steller's Jay	<i>Cyanocitta stelleri</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>
Common Raven	<i>Corvus corax</i>
Black-capped Chickadee	<i>Parus atricapillus</i>
Mountain Chickadee	<i>Parus gambeli</i>
Chestnut-backed Chickadee	<i>Parus rufescens</i>
(Common) Bushtit	<i>Psaltiriparus minimus</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Brown Creeper	<i>Certhia americana</i>
Winter Wren	<i>Troglodytes troglodytes</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Mountain Bluebird	<i>Sialia currucoides</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Hermit Thrush	<i>Catharus guttatus</i>
American Robin	<i>Turdus migratorius</i>
Varied Thrush	<i>Ixoreus naevius</i>
Wrentit	<i>Chamaea fasciata</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Orange-crowned Warbler	<i>Vermivora celata</i>
Yellow Warbler	<i>Dendroica petechia</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>
Townsend's Warbler	<i>Dendroica townsendi</i>
Hermit Warbler	<i>Dendroica occidentalis</i>
MacGillivray's Warbler	<i>Oporornis tolmiei</i>
Western Tanager	<i>Piranga ludoviciana</i>

Appendix B. Wildlife Species (cont.)

Common NameScientific Name**Birds (cont.)**

Rufous-sided Towhee
 Fox Sparrow
 Song Sparrow
 Dark-eyed junco
 Purple Finch
 Red Crossbill
 Pine Siskin

Pipilo erythrophthalmus
Passerella iliaca
Melospiza melodia
Junco hyemalis
Piranga ludoviciana
Loxia curvirostra
Carduelis pinus

Mammals

Vagrant shrew
 Trowbridge shrew
 Shrew-mole
 Lump-nosed bat*

Sorex vagrans
Sorex trowbridgei
Neutrichus gibbsi
Coryhinus townsendii
townsendii
Sylvilagus bachmani
Eutamias townsendi
Sciurus griseus
Tamiasciurus douglasi
Peromyscus manipulator
Neotoma fuscipes
Erethizon dorsatum
Urocyon cinereoargenteus
Procyon lotor
Canis latrans
Euartos americanus
Bassariscus astutus
Mustela frenata
Mustela erminea
Mephitis mephitis
Spilogale putorius
Felis concolor
Lynx rufus
Cervus elaphus roosevelti
Odocoileus hemionus
columbianus
Phenacomys longicaudus
Arborimus albipes
Martes americana
Myotis thysanodes
Onychomys mykiss

Brush rabbit
 Townsend chipmunk
 Western gray squirrel
 Douglas squirrel
 Deer mouse
 Dusky-footed woodrat
 Porcupine
 Gray fox
 Raccoon
 Coyote
 Black bear
 Ringtail cat
 Long-tailed weasel
 Short-tailed weasel
 Striped skunk
 Spotted skunk
 Cougar
 Bobcat
 Roosevelt elk
 Black-tailed deer

Red tree vole
 White-footed vole
 American marten
 Fringed myotis
 Winter steelhead

* = Special Status Species (See Table 3-2).

Source: Bowen et al. 1982 (Bird list revised to 1995 AOU standards).

